Honeywell

Operation and Service Manual for HERMetic TOMSYS

for use in non corrosive liquids

Portable digital automatic gas tight
Topping-off monitoring system

MED-D
DNV
Certified
Company

Certified System™
ISO 9001
QMI-SAI Global

Note 1: to identify the unit refer to section 2
Note 2: before using the instrument please read this book.
Note 3: this document is subject to changes without notice.
Check updates on www.tanksystem.com or contact us at tanksystem@honeywell.com

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2. Identification of your equipment

2.1 Serial number

Each HERMetic instrument is **individually identified** with a 6 digits serial number starting with the letter T, example T10025. This serial number is printed on the identification plate that is located on top of the device. See Figure 2-1.

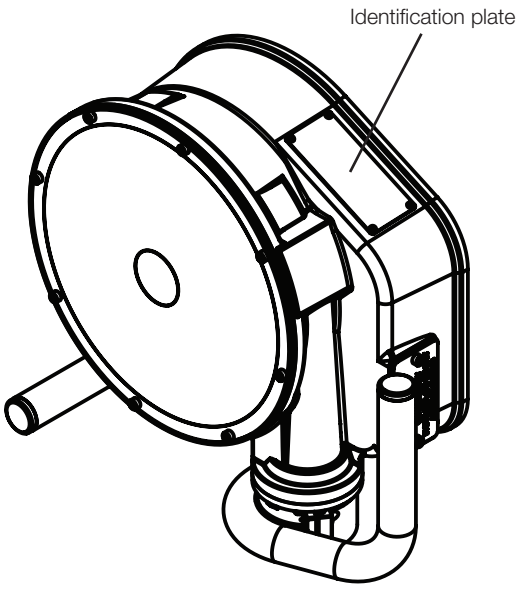


Figure 2-1

2.2 Abbreviations

Some abbreviations are used to define the equipment. Refer to following table and to Figure 2-2.

Abbreviation	Meaning
ETCE	Special PTFE used for extruding
FFKM	Perfluoro rubber, special for chemical applications
FKM	Fluoro rubber for crude oil and some products applications
NBR	Acrylonitrile-butadiene rubber (nitrile rubber)
PE	Polyethylene
PEHD	Polyethylene High Density
PFA	Perfluoro alkoxyl alkane
PTFE	Polytetrafluoroethylene
Q1	Connector 1”
Q2	Connector 2”
SS1	Stainless steel Storage tube 1”
SS2	Stainless steel Storage tube 2”
TEFZEL	ETFE coating of the tape

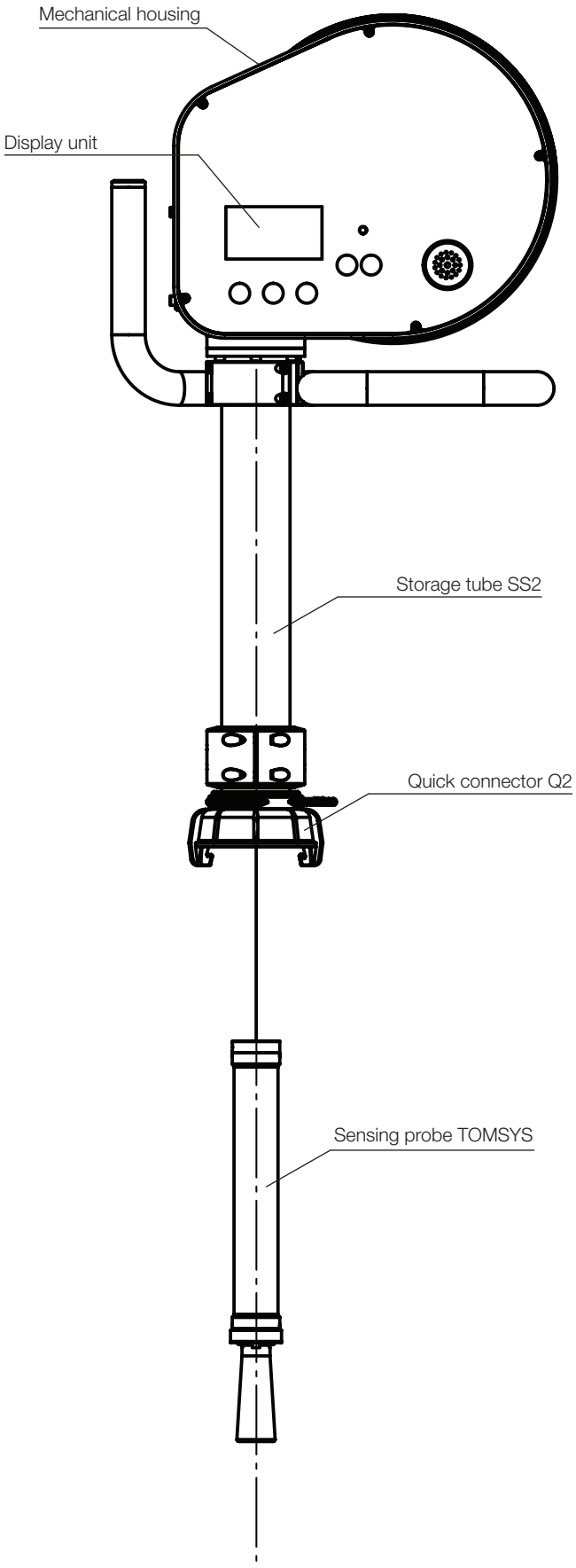

Mechanical housing
Display unit
Storage tube SS2
Quick connector Q2
Sensing probe TOMSYS

Figure 2-2

3. General information

3.1 Shipment note

The following parts should be included in the shipment:

- 1 instrument fitted out with six (6) batteries in the display;
- 1 Allen keys: 3 mm;
- 1 emergency crank,
- 1 Operation and Service Manual.

3.2 Initial inspection

Check the contents of the shipment for completeness and note whether any damage has occurred during transport. Carry out the “Initial test” refer to 9.4 “Checking the functions before using the unit” to verify the good functioning.
If the contents are incomplete, or if there is a damage, do not use the device, a claim should be filled with the carrier immediately, and Enraf Tanksystem SA Sales or Service organization should be notified in order to facilitate the repair or replacement of the instrument.

3.3 Documentation discrepancies

The design of the instrument is subject to continuous development and improvement. Consequently, the instrument may incorporate minor changes in detail from the information contained in the manual.

3.4 Warranty

One (1) year after installation but max. 18 months after delivery ex works except batteries.

The Vendor undertakes to remedy any defect resulting from faulty design materials or workmanship. The Vendor’s obligation is limited to the repair or replacement of such defective parts by his own plant or one of his authorized service stations. The Purchaser shall bear the cost and risk of transportation of defective parts and repaired parts supplied in replacement of such defective parts.

When returned to Enraf Tanksystem SA or any of its agreed Service Stations equipment must be contamination-free. If it is determined that the Purchasers equipment is contaminated, it will be returned to the Purchaser at the Purchasers expense. Contaminated equipment will not be repaired, replaced, or covered under any warranty until such time that the said equipment is decontaminated by the Purchaser.

The Purchaser shall notify by fax, email or in writing of any defect immediately upon discovery, specifying the nature of the defect and/or the extend of the damage caused thereby.

Where no other conditions have been negotiated between the Vendor and the Purchaser “General Conditions 188” of United Nations shall apply.

This instrument has been certified as Intrinsically Safe Instrumentation for only those classes or categories of hazardous areas stated on the instrument label, bearing the mark of the applicable approval authority. No other usage is authorized.

Unauthorized repair or component replacement by the Purchaser will void this guarantee and may impair the intrinsic safety of the instrument. In particular it is not allowed to repair electronic circuits.

In no event shall Enraf Tanksystem SA be liable for indirect, incidental or consequential loss or damage or failure of any kind connected with the use if its products or failure of its products to function or operate properly.

Enraf Tanksystem SA do not assume the indemnification for any accident or damage caused by the operation of its product and the warranty is limited to the replacement of parts or complete goods.

3.5 Certification

3.5.1 Ex certificates

Enraf Tanksystem SA is an ISO 9001 certified company by QMI and MED-D certified company by Det Norske Veritas Certification GmbH.

The equipment has been approved for the electrical intrinsic safety by the following authorities :

IECEx Ex ia IIB T4 Ga
-20°C < Ta < 50°C
Standards used:
IEC 60079-0, ed. 5.0 (2007-10),
IEC 60079-11, ed. 5.0 (2006-07),
IEC 60079-26, ed. 2.0 (2006-08)

ATEX II 1 G Ex ia IIB T4 Ga
-20°C < Ta < 50°C
Standards used:
EN 60079-0:2009,
EN 60079-11:2007
EN 60079-26:2007

Factory Mutual
(FM Approvals) CL I, DIV 1, GP C & D, Tamb 50°C
CL I, ZN 0, AEx ia IIB T4 Tamb 50°C
Standards used:
3600:1998 (General)
3610:2010 (Instrinsic Safety)

Regarding product compliance against standards updates or new standards, please refer to the Declaration of conformity.

If you need a copy of any of these certificates please contact:

Enraf Tanksystem SA
Rue de l'industrie 2
1630 Bulle, SWITZERLAND

Telephone : +41-26-91 91 500
Telefax : +41-26-91 91 505
Web site : www.tanksystem.com
E-mail : tanksystem@honeywell.com

3.5.2 Classification society certiifcates

The HERMetic TOMSYS is certified by following classification societies:
ABS Certificate of design assessment

3.6 Spare parts

When ordering spares identify the spare part by TS number and description. Refer to section "Drawings".

Some spares might be repairable; in this case send the part(s) to any authorised service center or to the factory.

In case of urgency, complete replacement units can be made available. Contact the factory or nearest Service Station for details.

3.7 Service and Repair

The customer is responsible for any freight and customs clearance charges. If units are sent on a "freight collect" the charges will be invoiced to the customer.

When returning units or parts for repair to the factory please fill out a service request form (see next page). The serial number (letter "T" followed by 5 digits) is printed on the identification plate as shown on the Figure 2-1.

When returned to Enraf Tanksystem SA equipment must be contamination-free. If it is determined that the customers equipment is contaminated, it will be returned to the customer at the customers expense. Contaminated equipment will not be repaired until such time that the customer decontaminates the said equipment.

Service Request

Customer's address: .....

.....

.....

.....

.....

Telephone: .....

E-mail: .....

Fax: .....

Type of unit or part: .....

.....

Serial number: .....

Short description of trouble: .....

.....

.....

.....

Do you want a quotation before repair is started: . ..... yes / no .....

Repaired unit has to be returned to the following address:

.....

.....

.....

.....

.....

4. Service station network

Service station network list can be found on our website at www.tanksystem.com.

For repairs, please contact the after sales department at tanksystem@honeywell.com

or

Send your device to

Enraf Tanksystem SA
Rue de l'Industrie 2
1630 Bulle
Switzerland

5. Recommendation for safe use

1. This Operation and Service Manual is a guide in order to help the user to operate the instrument to our best knowledge.

2. Nevertheless the maker disclaims all responsibility and liability for damage resulting from the use of the equipment regardless of the cause of the damage.

3. **Attention is drawn to the possible hazard due to electrostatic charges which may be present in the tank.** This may happen in particular with static accumulator liquids, i.e. liquids which have low conductivity of 50 picoSiemens/metre (pS/m) or less.

4. **It is very important that the instrument is grounded to the tank before the probe is introduced into the tank and remains grounded until after complete withdrawal from the tank.**

   4.1. If the instrument is installed with the genuine Tanksystem quick connect coupler, grounding is effected through the quick connect coupler and the mating nipple of the valve provided that these parts are kept clean and free from corrosion in order to guarantee electrical conductivity. If a grease is used for this purpose, it must be one which contains graphite.

   4.2. If the instrument is not connected to the mating deck valve, the instrument has to be also earthed by means of the grounding cable and clamp.

5. **It is anticipated that the user will have specific operating methods laid down to ensure safety when using this type of apparatus. In this case the user's instructions shall be strictly observed.**

6. **In the absence of such instructions the following should be noted:**

   6.1. If a metal sounding pipe is fitted beneath the deck valve or tank is inerted, then ullaging, etc. is permissible at any time with no restriction.

   6.2. If there is no sounding tube or tank is not inerted, the following precautions shall be taken:

      6.2.1. If the cargo is not a static accumulator liquid, i.e. its conductivity is more than 50 pS/m, then ullaging is permitted provided that the instrument is properly grounded and earthed before the probe is inserted into the tank and remains earthed until the probe has been removed from the tank.

      6.2.2. If the cargo is a static accumulator liquid, i.e. its conductivity is less than 50 pS/m, then ullaging is permitted provided that:

         6.2.2.1. The instrument is properly grounded and earthed before the probe is inserted into the tank and remains earthed until the probe has been removed from the tank.

         6.2.2.2. The apparatus is not introduced into a tank until at least 30 minutes have elapsed after completion of any loading operation or stopping the injection of inert gas.

   6.3. For further guidance refer to International Safety Guide for Oil Tankers and Terminals (ISGOTT), ISBN 1 85609 291 7, Fifth Edition 2006, or consult the appropriate Legislative Authority for the installation.

7. **Warning: change of battery must be carried out in safe area only (non flammable atmosphere). Use only the approved model and brand. Refer to the Care and Maintenance section of this manual.**

8. This product and his use is / may be related to international, national, local or company regulations or standards. It is the customer / user responsibility to ensure that the way to use the device complies with such applicable regulations or standards.

9. This device is a portable product. It must not be permanently installed on the tank and must be disconnected after use and stored in a safe and dry area.

6. Functions - Key Features

This HERMetic instrument is a gas tight portable digital automatic gauging system designed to perform under closed conditions ullage monitoring and ullage measurements:

a) Topping off monitoring. The HERMetic TOMSYS monitors continuously the liquid level over the last three (3) meters from his reference height. The liquid level is monitored continuously on the electronic display without any manual operation

b) Ullage monitoring / measurement.

Distance measurement range: 3.6 m (up to 12 feet approx.)

Distance resolution: 0.1 mm, 0.5 mm, 1mm or 5 mm
1/64", 1/32", 1/16", 1/8"
selectable

Distance measurement accuracy: ±2 mm (± 0.08" approx.)

Hazardous areas under normal atmospheric conditions:
80 kPa to 110 kPa

Maximum Tank Over pressure: -0.1 to +0.2 bar
-1.5 psi to 2.9 psi

Ambient temperature range: -20°C to 50°C (-4°F to 122°F)

Process Fluid temperature range: -10°C to 70°C (14°F to 158°F)

Gauging is done under closed gas tight conditions, therefore maintaining over or under pressure in the tank. The device is approved for atmospheric pressure conditions.

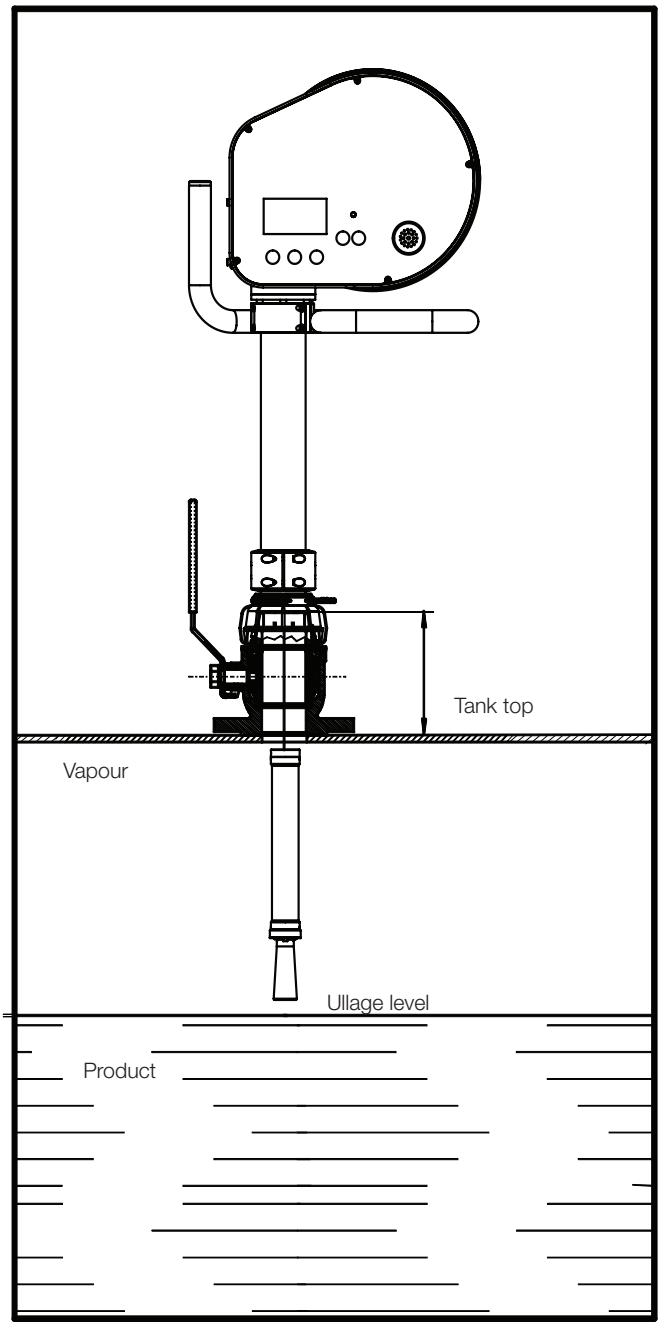


Figure 6-1

7. Description

7.1 General

Each HERMetic instrument is **individually identified** with a 6 digits serial number starting with the letter T, example T10025. This serial number is printed on the identification plate as shown on Figure 7-1.

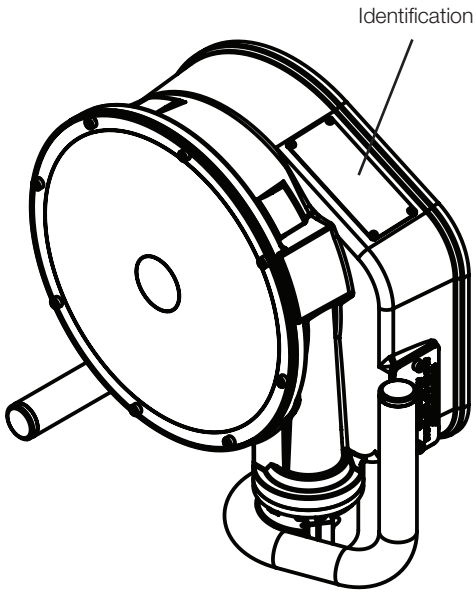
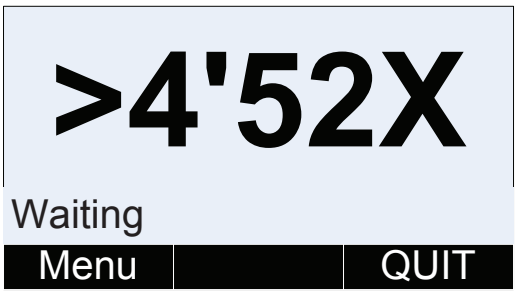


Figure 7-1

The unit displays distance (Ullage) measurement combined with sounds according to level measured value.

The unit emits and displays:

Control beep: • • •
Liquid level is outside measurement range



Between >4’523 and >4’534 depending on the settings

Double beep: •• •• ••
Liquid is detected, distance on the display.

Accelerated double beep: •• •• •• •• ••
Liquid level reaches Preset Level 1, distance on display with Preset 1 message

Fast double beep: •• •• •• •• •• •• ••
Liquid level reaches Preset Level 2 or Ullage level detected in Ullage mode, distance on display with Preset 2 or Ullage message

Continuous ton: ——————
Error or malfunctioning unit combined with error message (No message, No reference, Too close, Low battery, Tilt error, Sensor jam)

Control beep	• • •
Double beep	•• •• ••
Accelerated double beep	•• •• •• •• ••
Fast double beep	•• •• •• •• •• •• ••
Continuous beep	• • • • • • • • • • • • • • • • • •
Continuous tone	——————

An automatic backlight manages LCD Display contrast according to ambient light.

The HERMetic TOMSYS instrument is powered by six (6) AA cells stored in a battery holder located in the main housing. Battery status is displayed on the screen. When battery voltage is too low buzzer emits continuous tone and display shows a battery error message. Every time it is possible to check battery status. Battery must be replaced by approved battery in safe area only.

Maintenance is easy because design is modular and allows quick exchange of parts.

See Figure 7-2 to get to know the equipment.

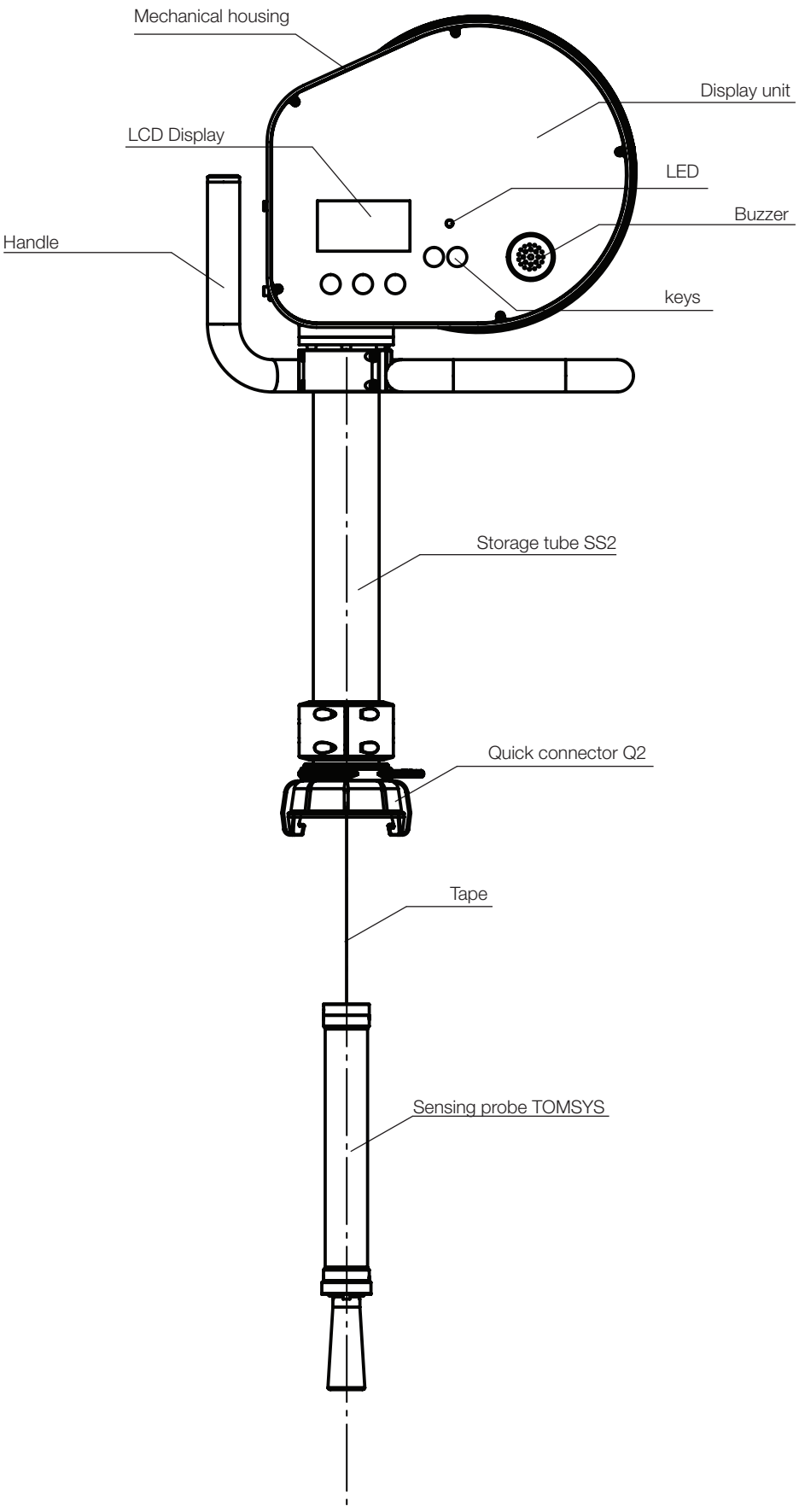

Mechanical housing
Display unit
LCD Display
LED
Buzzer
Handle
keys
Storage tube SS2
Quick connector Q2
Tape
Sensing probe TOMSYS

Figure 7-2

7.2 TOMSYS sensing probe

The TOMSYS sensing probe consists of a stainless steel tube terminated by a high-tech plastic concentrator. The sensing probe includes an ultrasonic liquid level transducer. The sensitivity for ullage measurement is not adjustable.

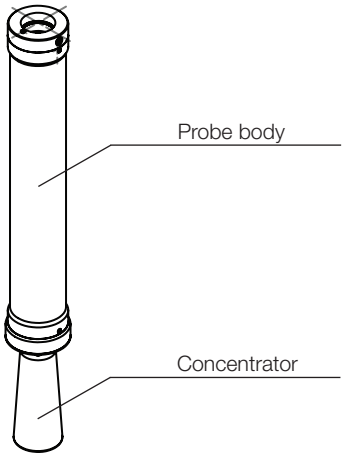


Figure 7-3

7.3 Tape

The ETFE (TEFZEL®) coated tape provides 2 main functions :

- It holds the sensing probe.
- It contains 2 wires for transmitting the signal and the power between the display unit and the probe. The steel tape itself is used as a grounding wire between the sensing probe tube and the display unit.

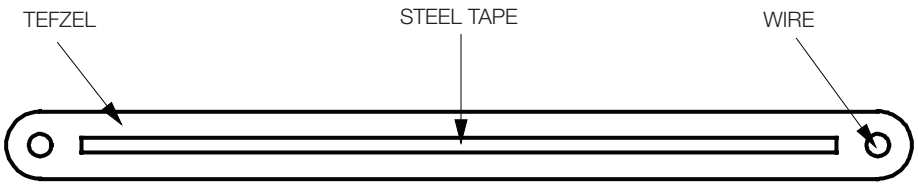


Figure 7-4

7.4 Distance measurement

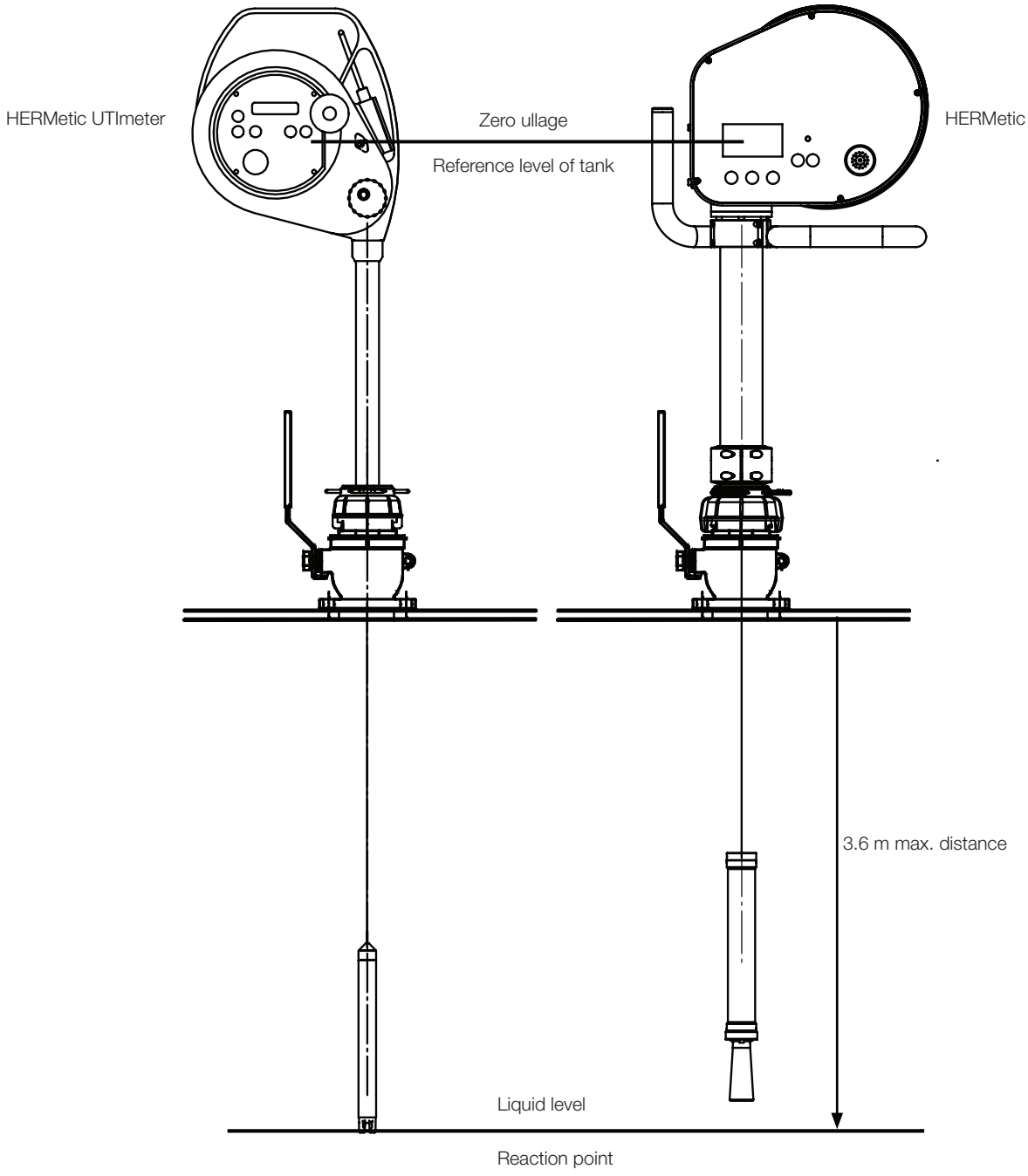


Figure 7-5

The distance reading at the height of the reading index of the instrument is indicating the distance between the reaction point and the virtual index. If the instrument is installed in such a way that the virtual index is at the same level as the zero-ullage reference level, the distance reading corresponds to the ullage providing the reaction point of the sensing probe is positioned at the liquid level.

The distance reading corresponds to the portable HERMetic UTImeter tape reading. If the virtual reading index is positioned below or above the reference level a positive or negative correction of the tape reading is necessary.

See also chapter 8 “Examples of installation of the gauging system”.

7.5 Gas tightness

All parts are assembled together with either gaskets or O-rings, that makes the device completely tight.

The sealing of the axle is ensured by a special V-shape gasket.

7.6 Gaskets

Gaskets are made in FKM material

7.7 Housing and lid

These parts are made in high-tech antistatic plastic.

7.8 Others

The tape is coiled on a drum driven by an electrical motor or by the emergency manual crank.

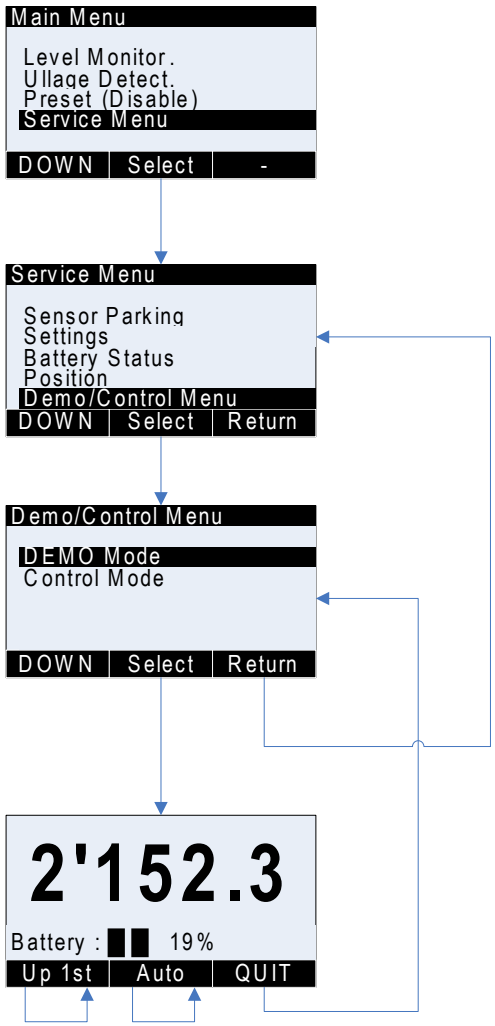
The storage tube is screwed to the frame. The storage tube is equipped with a quick-connector which fits on the HERMetic valves.

7.9 Demo Mode function

The DEMO Mode is specifically dedicated to explain the operation of TOMSYS at end user office. To test the device, a horizontal, flat and stable surface to place TOMSYS and a target surface made of solid, flat and smooth material are required only (a desk on a flat and smooth concrete, tiles or linoleum for instance)

Demonstration Process:

1. Place TOMSYS vertically on a desk, put on its handle.
2. Switch on TOMSYS and select the menus below.



The sensor goes down or up until the floor detection (in our exemple up to 2 152.3mm).

3. Press “Key I” – Up 1st mode

By pressing “Key I”, the sensor lifts up one step by about 50mm.
The measure displayed is still the same, the system compensates automatically the sensor displacement.

4. Press “Key II” – Auto mode

By pressing “Key II”, the sensor lifts up by step of about 50mm with 15-20 seconds break until the target is no more detected.
The Auto mode allows to simulate the raising of the liquid level.
This mode simulates the actual operating of TOMSYS during the Topping-Off monitoring process.

5. Press “Key III” – Quit / Return Mode

By pressing “Key III”, the sensor lift-up up to its park position in the storage tube.

Note:
Make sure the target surface is of solid, flat and smooth material (floor, rigid paper sheet, steel plate but not a carpet or liquid).

8. Examples of installation of the gauging system

8.1 General

The gauging system consists of the HERMetic instrument and the associated HERMetic valve. The TOMSYS is fitted with a 2” connector as shown on Figure 8-1.

Q2 (2”) with Quick Cap

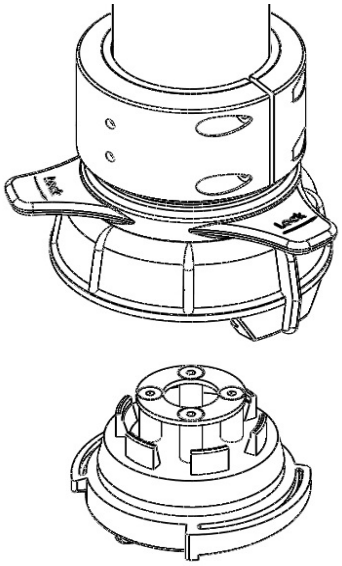


Figure 8-1

The following sections describe 2 examples for installing the valves and adjusting the height of the gauging system.

The valves should be installed in such a way that the zero-ullage level coincides with the virtual reading index level, so that no correction would be necessary. For achieving this it may be necessary to install an adjusting pipe between the deck and the valve.

If the valves are installed directly on deck or if for any reason the level of the virtual reading index is below or above the zero-ullage level, then a correction table should be used.

There should be no internal tank structure between the valve outlet and the 4 metre below such that will impede the path of the equipment into the tank.

All valves shall be installed at the same level.

There is no way to correct systematic level errors.

When designing the gauging port and to avoid damaging the tape during rewinding it is advised to chamfer or to grind all sharp edges (on pipes, flanges, etc.) that could damage the tape when operating the gauge.

8.2 Example of installation on a pipe, connector Q2

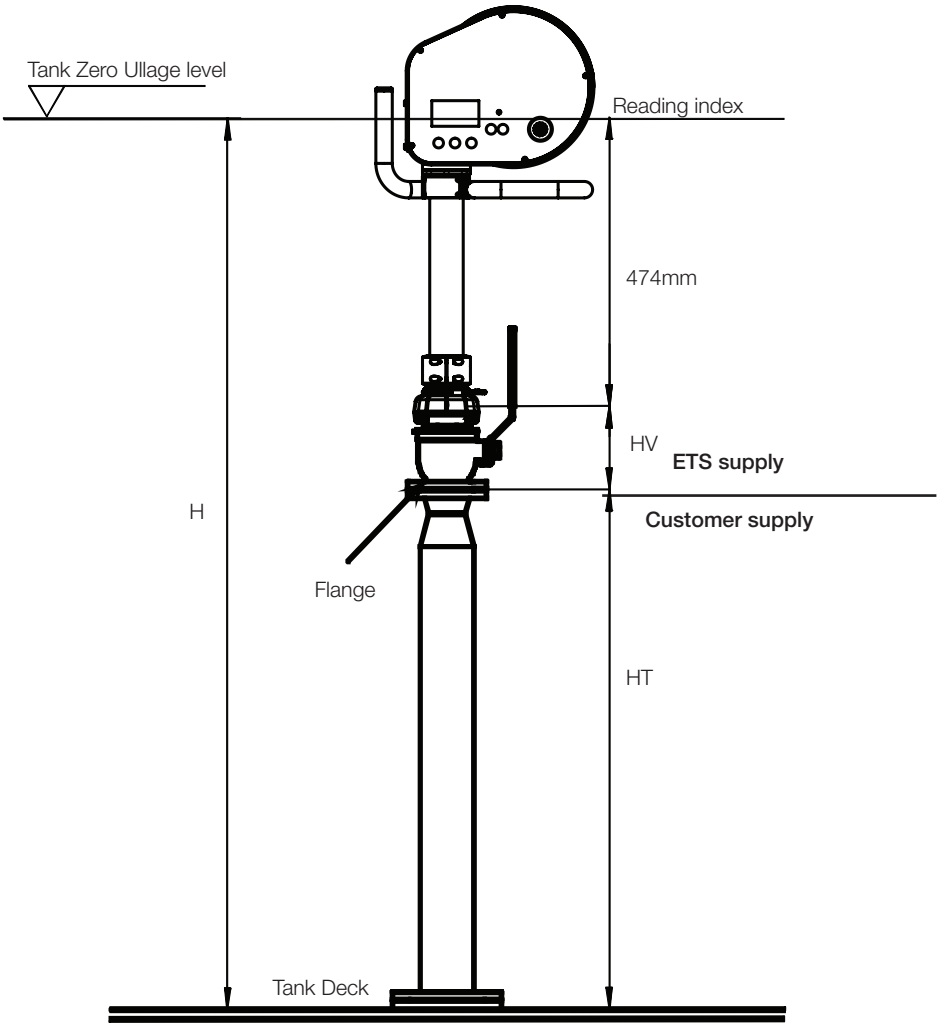


Figure 8-2

Valve designation	C.2-SS; C.2-SS-W; C.2-SS-BL; C.2-SS-SEC
Bottom connection	thread or flange
Boring	2”
*) HV (mm)	141
*) HT (mm)	H-615

*) Dimension HV is without gasket. If gaskets are used dimension HT is reduced by thickness of gasket.

8.3 Example of installation on the deck, connector Q2

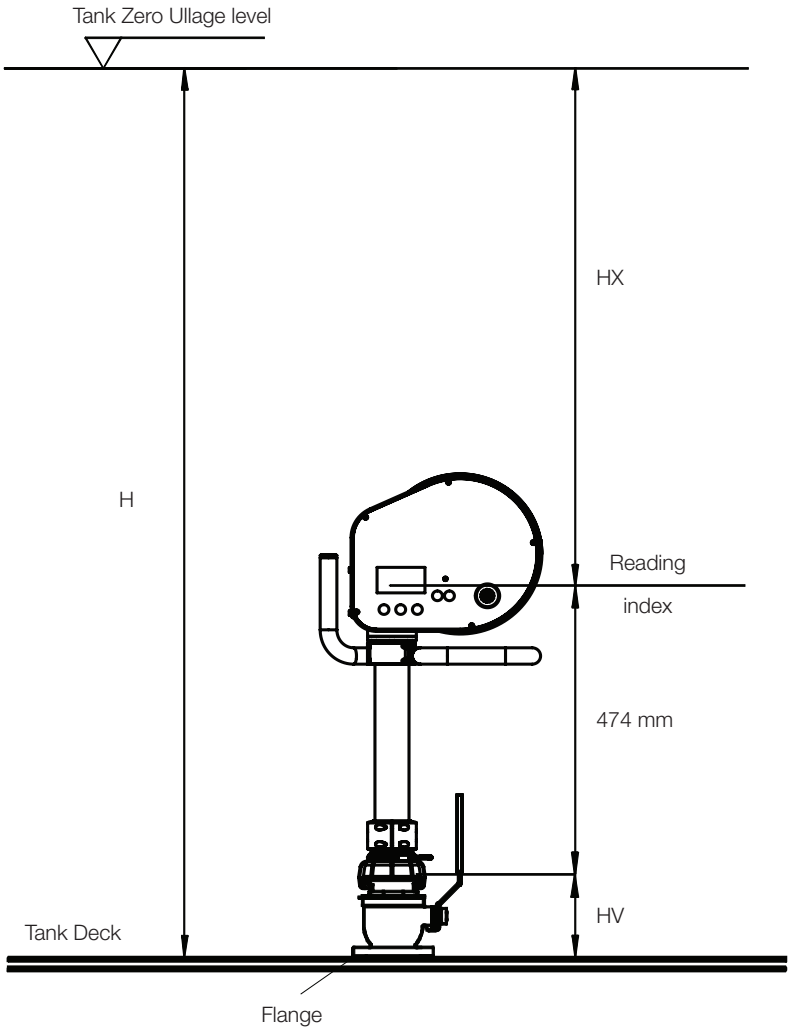


Figure 8-3

Valve designation	C.2-SS; C.2-SS-W; C.2-SS-BL; C.2-SS-SEC
Bottom connection	thread or flange
Boring	2”
*) HV (mm)	141
*) HX (mm)	H-615

*) Dimension HV is without gasket. If gaskets are used dimension HX is reduced by thickness of gasket.

9. Operation

9.1 Basic rules concerning the 5-key control pad

Before operating the unit, please read carefully this Operation and Service Manual.

Apart from the “ON” / “OFF” keys that are self-explanatory, there are three (3) other soft keys (I ,II and III) that help in managing all the unit functions:

Those three keys are menu oriented and have functions depending on which menu they are applied.

Soft keys main use:

- key “I” moves the cursor DOWN
- key “II” selects the highlighted function
- key “III” return to previous menu or QUIT selected function.

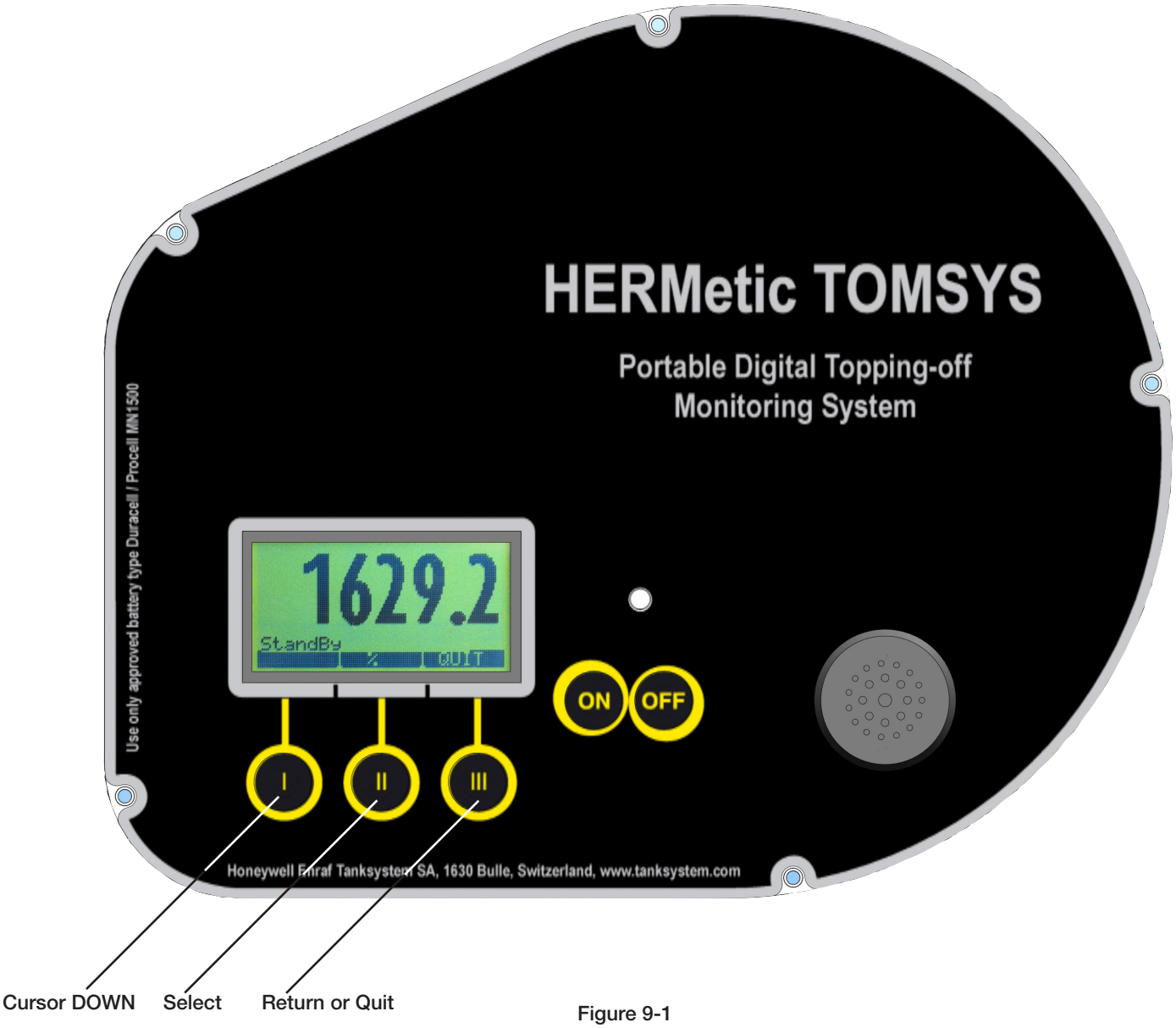


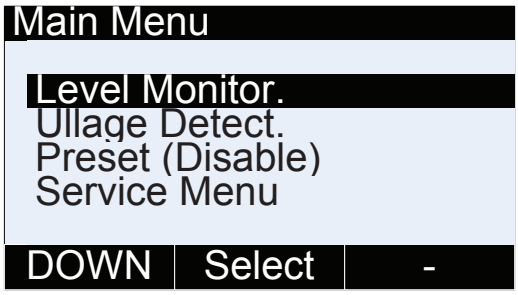
Figure 9-1

9.2 Quick start

9.2.1 Level monitoring

a) Press “ON” key to switch on the unit

After displaying some information about software version and setup, display shows:



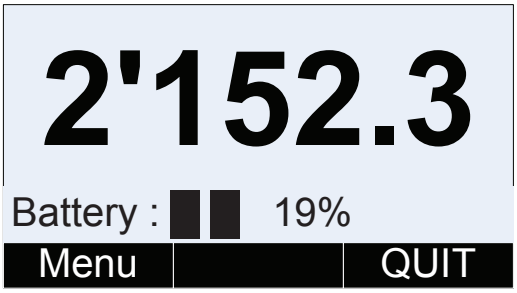
b) If necessary move cursor by pressing soft key “I” to “Level Monitor”

c) Then press soft key “II” (Select) to activate the function.

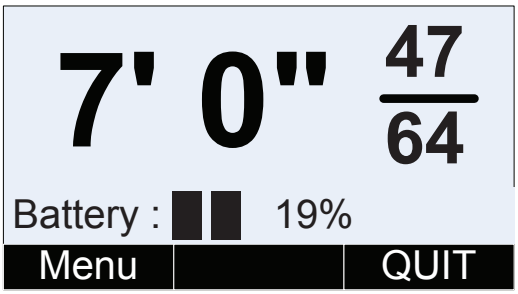
Unit starts by resetting the distance measurement.

Then sensor moves down and stop when liquid is detected or moves to lower position waiting on liquid level detection

Display shows following for a liquid detected at ullage level 2’152.3 m



Or in Inch scale

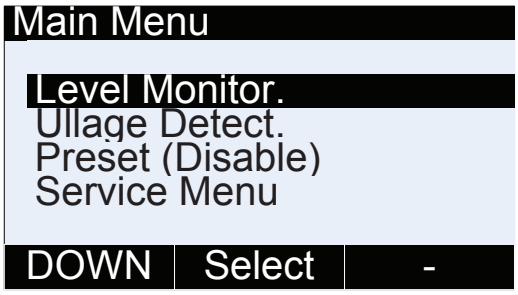


9.2.2 Ullage detection

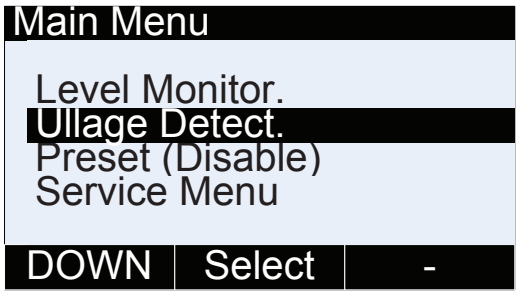
a) Press “ON” key to switch on the unit

After displaying some information about software version and setup,

Display shows:



b) If necessary move cursor by pressing soft key “I” to “Ullage Detector”



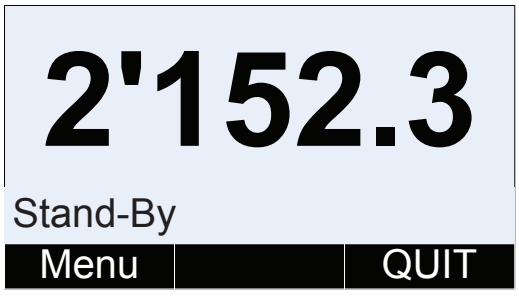
c) Then press soft key “II” “Select” to activate the function.

Unit starts by resetting the distance measurement.

Then sensor moves down and stops when liquid is detected.

The displayed distance corresponds to ULLAGE LEVEL.

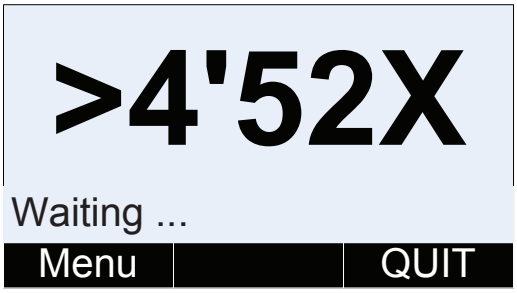
Display shows:



This measured value has the same value as ULLAGE LEVEL measured by UTI or UTImeter.

If there is no detectable liquid sensor moves to lower position waiting on liquid level detection.

Display shows:



9.2.3 Preset

TOMSYS allows you the possibility to setup two (2) preset liquid levels. Those two levels can be used to draw the user's attention when liquid level reaches one of those levels.

Preset level values are ULLAGE level values in mm.

When liquid level reaches PRESET level 1 buzzer sounds accelerated double beep.

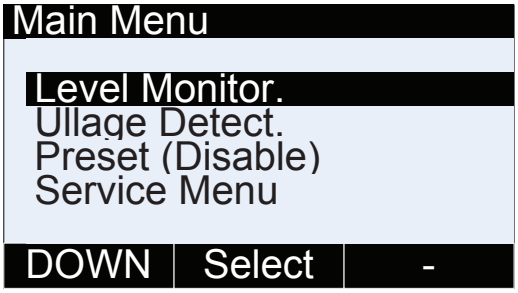
Control beep	• • •
Double beep	•• •• ••
Accelerated double beep	•• •• •• •• ••
Fast double beep	•• •• •• •• •• •• ••
Continuous beep	• • • • • • • • • • • • • • • •

When liquid level reaches PRESET level 2 buzzer sounds fast double beep.

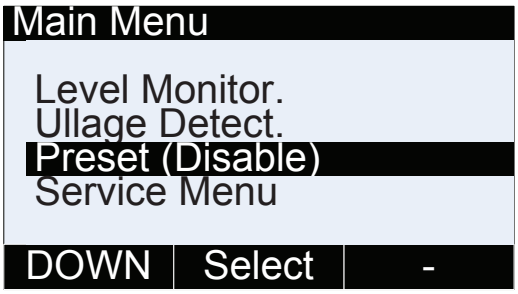
PRESET level function can be enabled or disabled.

To setup PRESET level do the following:

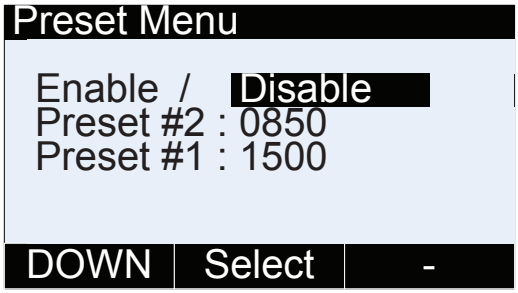
a) Press "ON" key to switch on the unit
After displaying some information about software version and setup, displays shows :



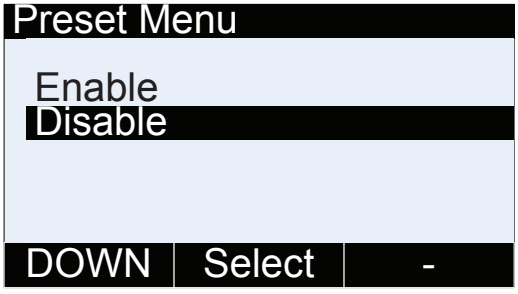
b) Move the cursor by pressing soft key "I" to "Preset"



c) Then press soft key "II" "Select" to activate the function



d) Enable or disable the Preset function by moving the cursor Down by pressing soft key "I". Press soft key "II" to "Select"

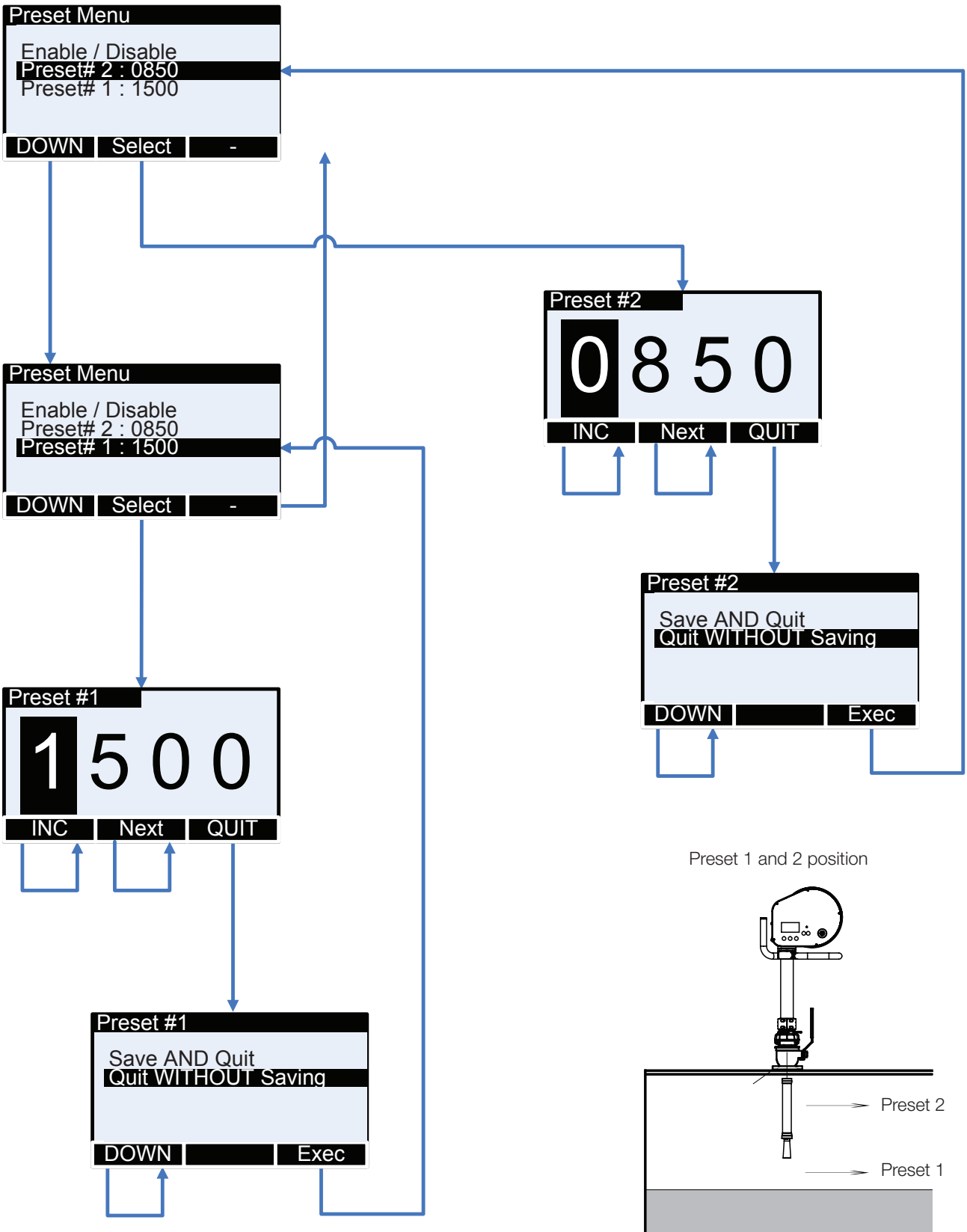


The setup for the two level values is described in the flowchart on Figure 9-2

Flowchart to set up the two Preset level values

Preset 1 is the lower ULLAGE level value
Preset 2 is the upper ULLAGE level value

Enable or Disable the PRESET function



Preset 1 and 2 position

Figure 9-2

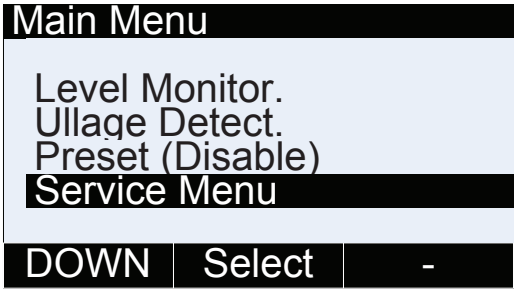
9.3 Service Menu

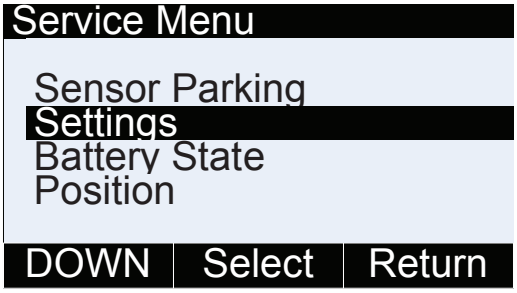
9.3.1 Settings

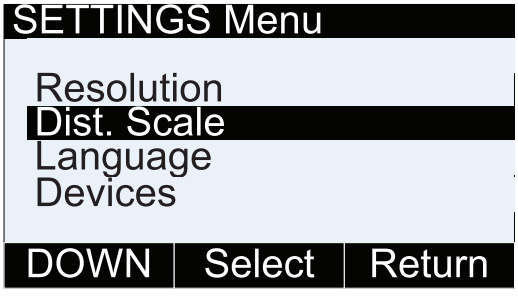
This function allows you setting up:
- Distance Measurement Scale
- Distance Measurement Resolution
- Menu Language

9.3.1.1 Distance Measurement Scale

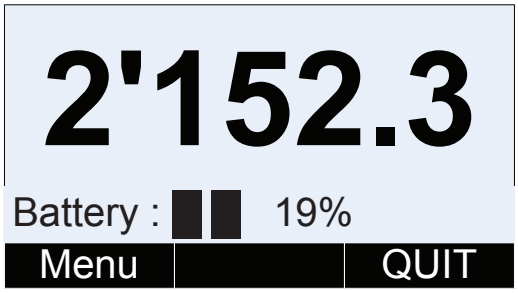
To setup measurement scale in Metric or Imperial units, follow the instructions according to the flowchart hereunder.



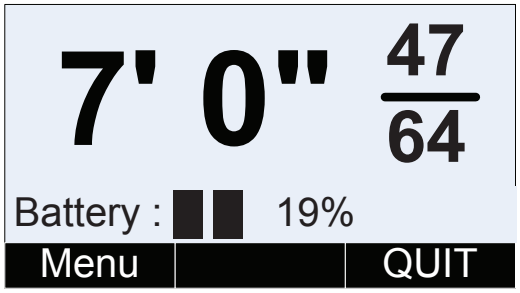




The distance will be displayed accordingly
In Metric scale

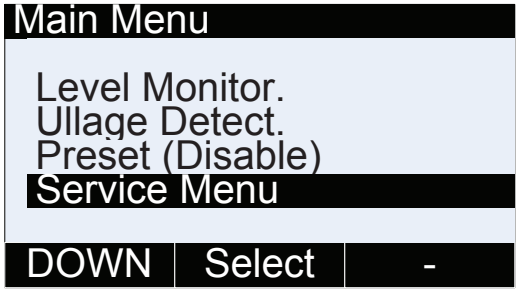


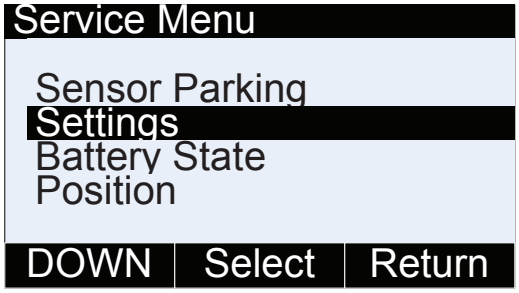
Or in Inch scale

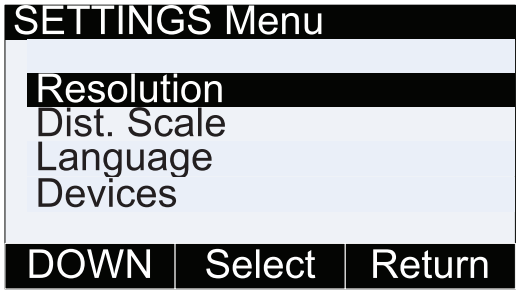


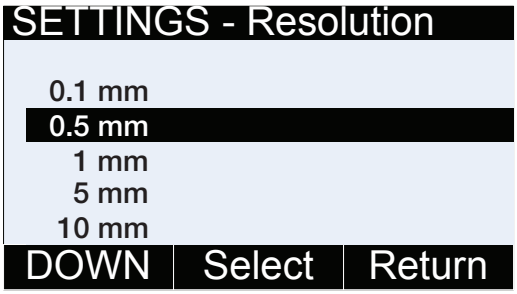
9.3.1.2 Distance Measurement Resolution

To setup measurement unit resolution follow the instructions according to flowchart hereunder.

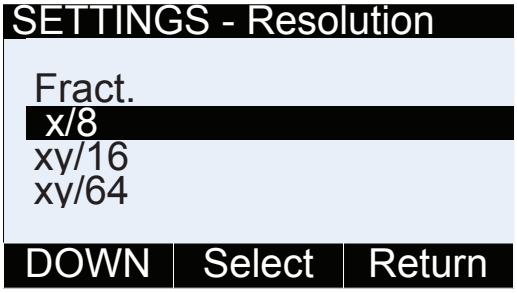








Or in Inch resolution



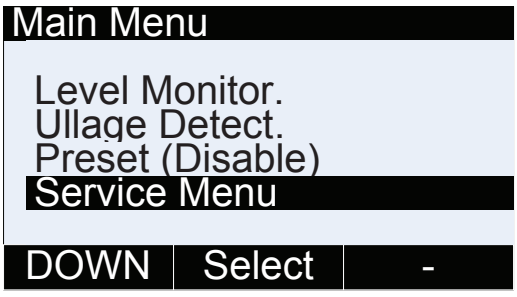
9.3.1.3 Menu Language

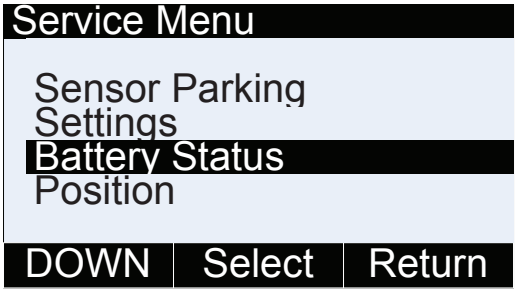
Only English language is available

9.3.2 Battery status

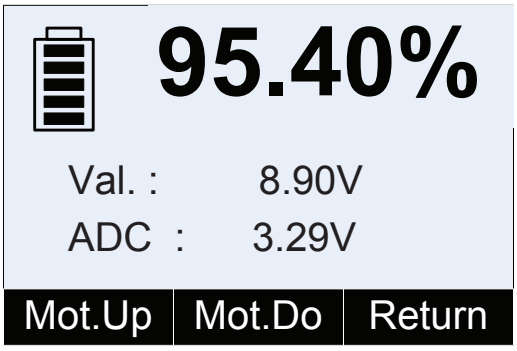
This function allows you to check the remaining battery capacity at any time. The battery capacity is expressed in % of capacity and voltage.

From Main Menu, follow the instructions according to flowchart hereunder.





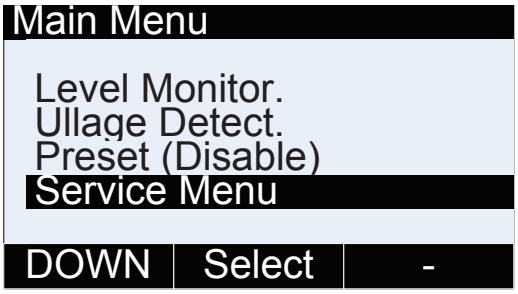
Display shows the remaining battery capacity in %:

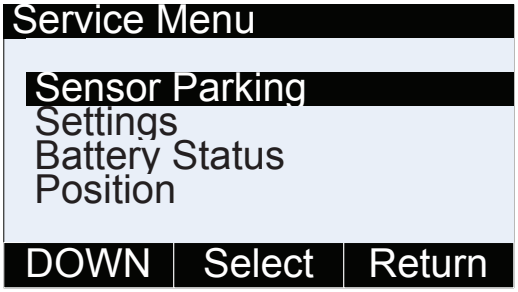


9.3.3 Sensor Parking

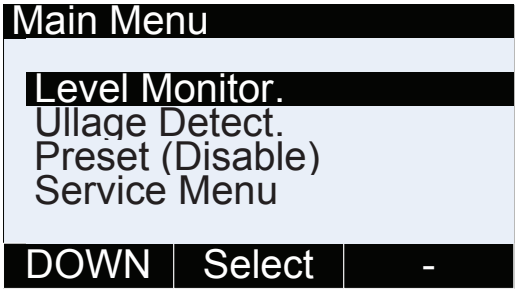
This function forces sensor to be lifted up to park position.

From Main Menu, follows the instructions according to following flowchart.





Selecting sensor parking will return the sensor into the park position and display the distance ascending values during the sensor return. Display automatically switches to main menu after park position is reached



9.4 Checking the functions before using the unit

Before installing the HERMetic TOMSYS unit as described in section 9.5, the following tests are recommended to ensure that the unit is ready to work.

9.4.1 Battery

Refer to section 9.3.2 “Battery status”. If battery capacity is lower than 20% please replace the battery if you plan to use the unit for several hours without disruption.

For battery replacement please refer to section 10.3.

9.4.2 Level monitor and Ullage detector

Install the unit on a table / desk or workbench according to fig. 9.3 hereunder. Make sure the target surface is of solid, flat and smooth material (floor, hardpaper, steel plate).

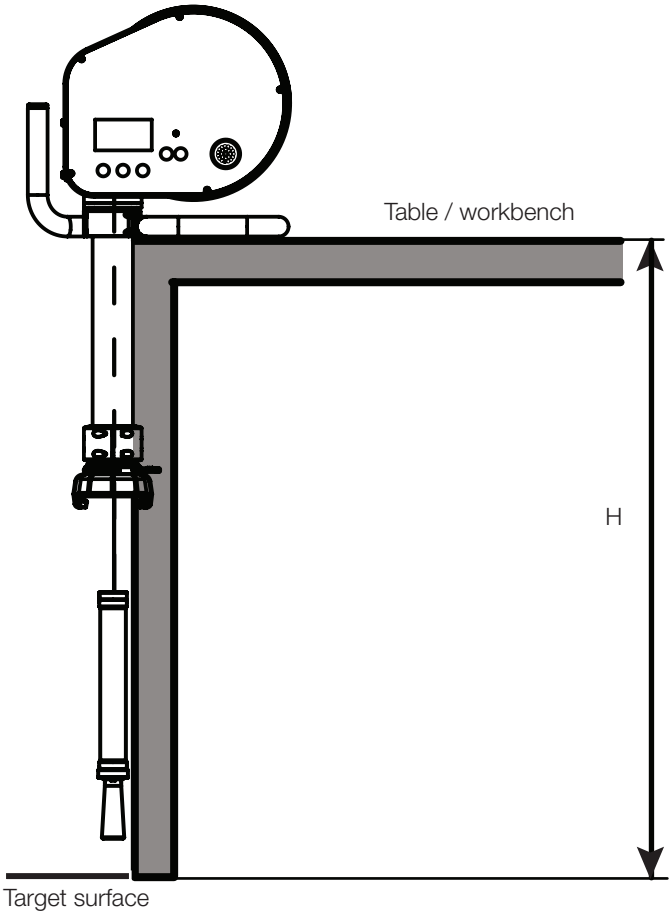


Figure 9-3

Refer to section 9.2.1 or 9.2.2 accordingly for function tests.

The Display shows you the distance H (between table plate and the target) + 162.5 mm ± 2 mm (6 Inch 25/64 ± 5/64) corresponding to the distance between the “Virtual internal reading index” and the target.

9.5 Installation of the unit

- This HERMetic equipment must be coupled to a certified HERMetic valve.
- Before starting please read carefully the chapter “Recommendation for safe use” and follow your company’s safety instructions.
- Before removing the valve cover check that the HERMetic valve is closed.
- Remove the valve cover (weather cap / blind cover / security cover) of the HERMetic valve.
- Clean the seal surfaces of the nipple of the valve and of the coupler of the instrument from dust or grease.

Note: **Cleaning** of the mating surfaces is very important for **earth grounding** purpose and for good accuracy on **zero reference level**.

- Install the HERMetic TOMSYS on top of the valve by means of the quick coupler. Ensure that the equipment is properly earthed. If not, ground it with the grounding cable before operating (optional TS 13051 grounding cable).
- **Equipment must be installed in vertical position.** A tilt detector prevent any tape movement if unit is not in vertical position.

9.6 Level monitoring

Refer to section 9.2.1

9.7 Ullage detection

Refer to section 9.2.2

9.8 Transportation

The TOMSYS is equipped with a specific handle enabling its transportation in horizontal position.

The transportation of the unit must be made in Off mode only.

Always move the device with the sensor parked in its storage tube and with its cap properly in place. This is critical to avoid damaging the motorisation system.

10. Care and Maintenance

Honeywell

10.1 Safety warning

As this equipment is designed and approved for use in an explosive area (intrinsic safe equipment), only authorized service stations and the factory are allowed to repair electronic circuits.

However the customer can exchange parts and modules if the following points are observed :

1. Never open the instrument nor carry out any repair or trouble shooting in an hazardous area.
2. Use only original spare parts.
3. Work shall be done only by maintenance personnel who has an experience with intrinsically safe equipment.

10.2 Care

Clean the instrument of any excess of liquid after each use. Make sure that the sensing probe is completely stored in the storage tube after use. Check that sensor is clean and dry for storage.

Store the instrument in a dry location.

Check periodically (at least every 6 months) the continuity of grounding by measuring the electrical resistance between the tape adaptor (or the sensing probe tube) and the quick connect coupler. Resistance should not exceed 10 Ω.

Periodically clean carefully the sensor probe and the mechanical parts, as storage tube, main housing with an appropriate solvent.

10.3 Checking the battery

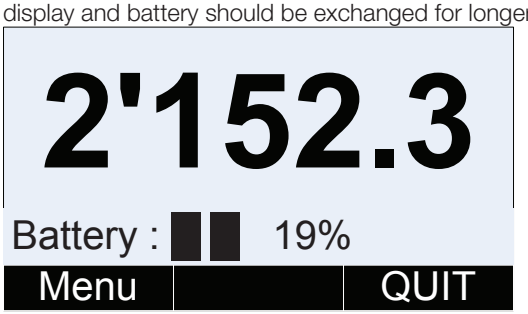
Please note that in case you have to change the battery, it must be done only in a safe area. Refer to section 10.3 “Battery replacement”.

Before starting gauging

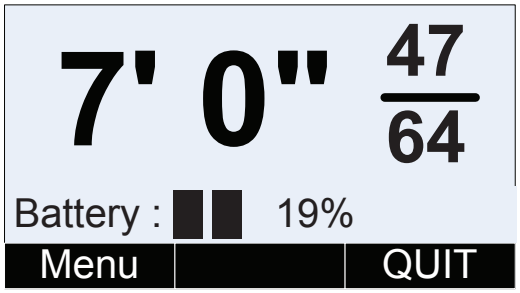
Switch on the unit. The buzzer tones every 2 seconds if the battery is not too low.

If the power left is less than 50% we recommend to have a spare battery ready for exchange. See also 10.3 “Battery replacement”.

If the power left is less than 20% battery status appears on the display and battery should be exchanged for longer use:



Or in Inch scale



10.4 Battery replacement

Warning : change the battery only in a non hazardous area.

- Switch off the unit
- Install the Quick Cap
- Unscrew the 2 screws of the battery holder using the 2,5 mm Hex Allen key which is located on the carrying case. See Figure 10-1.

Figure 10-1

- Pull it gently out. Do not use knife or screwdriver to remove the battery cover to avoid damaging the gasket.
- Remove the battery holder form the battery cover.
- Change the batteries. Respect the polarity when you insert battery in battery holder
- Place the battery holder in the battery cover by pushing it gently.
- Install the battery cover back in the housing.
- Tighten the two (2) screws.

Only one type of battery is approved:

Duracell MN1500 / Procell PC1500

10.5 Display unit replacement

THE REPLACEMENT OF THE DISPLAY UNIT REQUIRES TO SETUP THE CONFIGURATION ACCORDING TO YOUR REQUIREMENTS. CUSTOMER SPECIFIC SETTINGS FOR MEASUREMENT SCALE AND PRESET 1 AND 2.

10.5.1 Disconnecting the Display unit.

Warning: This operation must be done only in a non hazardous area

- Switch off the unit
- Install the Quick Cap
- Unscrew the two (2) screws (A) of the battery holder using the 2.5mm Hex Allen key located in the carrying case. See Figure 10-1

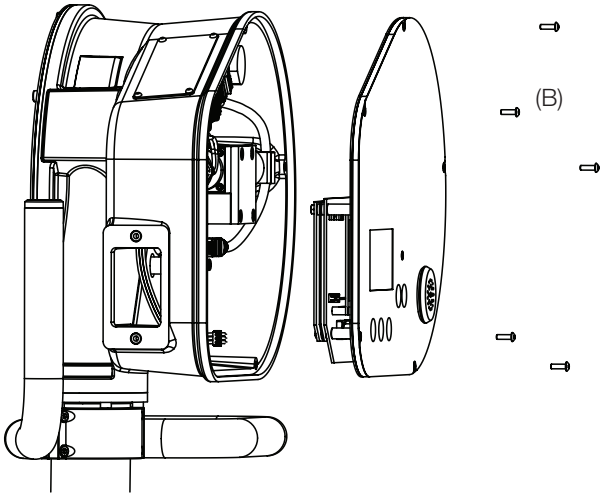


Figure 10-2

- Pull it gently out. Do not use knife or screwdriver to remove the battery cover in order to avoid damaging the gasket.
- Unscrew with the 2.5mm Hex Allen key the five (5) screws (B) of the display unit and pull it gently out of the main housing, as shown on Figure 10.2
- Disconnect the tape plug
- Disconnect the motor cable plug
- Disconnect the coder cable plug by pressing on the locking lever

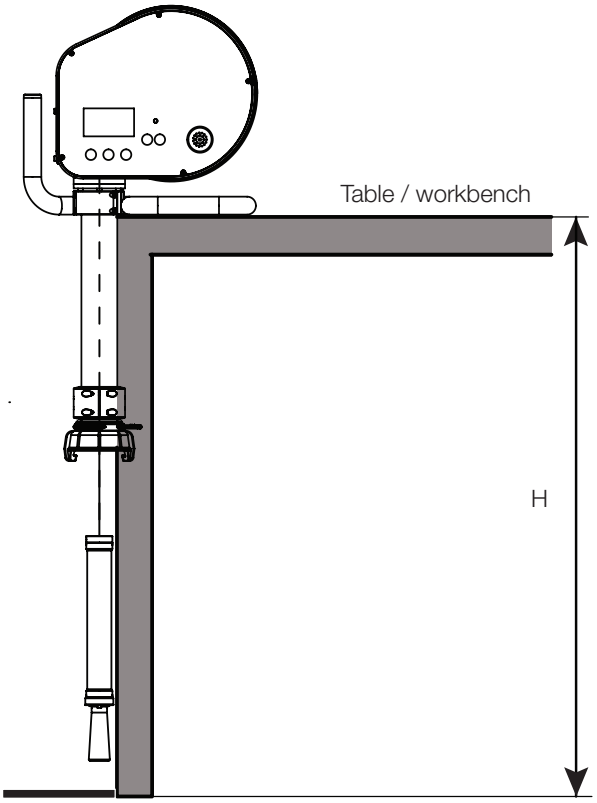
10.5.2 Connecting the Display unit

- Connect the coder cable plug
- Connect the motor cable plug
- Connect the tape plug
- Put back the display unit in the main housing; tighten the five (5) screws (B) of Figure 10.2
- Reinstall the battery holder with the two (2) screws (A) of Figure 10.1. Tighten the screws with the 2.5mm Hex Allen key. Refer to Figure 10-1 on page 27x.
- Check that the unit is working properly as describe in 9.4.

10.6 Distance verification

The distance measured by the unit is a combination of two electronic measurements.
One measurement is done by the sensor and the other one by the main unit.

Refer to 9.4.2. check the distance measurement



Display shows: H + 162.5 mm ± 2mm.
or H + 6 Inch 25/64 ± 5/64

Note:
Make sure the target surface is of solid, flat and smooth material (floor, hardpaper, steel plate).

10.7 Plastic parts

Use only light solvent to clean plastic parts. Do not use acid to clean plastic parts.

10.8 Calibration recommendation

As for any measurment tools, it is recommended to check and calibrate the HERMetic Tomsys against master periodically. The period recommended should not exceed 1 year.

11. Trouble shooting

11.1 Safety warning

As this equipment is designed and approved for use in an explosive area (intrinsic safe equipment), only authorized service stations and the factory are allowed to repair electronic circuits.

However the customer can exchange parts and modules if the following points are observed :

1. Never open the instrument nor carry out any repair or trouble shooting in an hazardous area.
2. Use only original spare parts.
3. Work shall be done only by maintenance personnel who has an experience with intrinsically safe equipment.

The design of the equipment is modular, i.e. in case of breakdown the customer can find out which modules have to be replaced. The instrument consists of the following modules:

- Mechanical parts
- Sensing probe
- Display unit

The following sections should allow to identify the defective module and to replace it.

11.2 Emergency crank

The emergency crank aims to rewind the tape manually. Turn clockwise to rewind the tape and lift up the sensor. Never force on the crank if you feel some resistance.

Use emergency crank only if equipment is installed in a vertical position or on a 2” valve or 2” coupling device.

The emergency crank must be fully inserted till the end in order to come up against the guide entry. Doing so will permit proper function of the crank.

See below section where appropriate

11.3 Power supply troubles

Symptom	Origin	Action	Section
The unit does not switch on	Battery too low	Change the battery	10.3
	Corrosion of terminals (battery side)	Clean the battery terminals	---
	Corrosion of terminals (display unit side)	Clean the display unit terminals	---
	Switch defective	Change the display unit	10.4
The unit switches on but stops on the message “battery”; the buzzer tones continuously	Battery too low	Change the battery	10.3

11.4 Transmission troubles

Symptom	Origin	Action	Section
“No Msg “ is displayed	Sensor out of work or	Send the unit to factory	---
	Tape out of work	Send the unit to factory	---

ERROR
SENSOR : NO MSG
Error from Sensor
Sensor Parking

11.5 Sensor moving troubles

11.5.1 Moving trouble on the way down

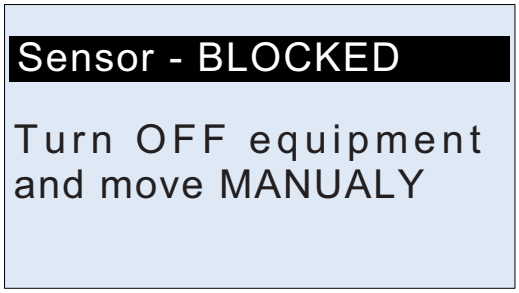
The sensor can get blocked during descent at valve crossing due to a mechanical obstacle. If this happens, the sensor will automatically get back in the top parking position and following message will be displayed.

Check if the connection valve is fully open and no obstacle reduces the 2 Inch full bore opening.

11.5.2 Moving trouble on the way up

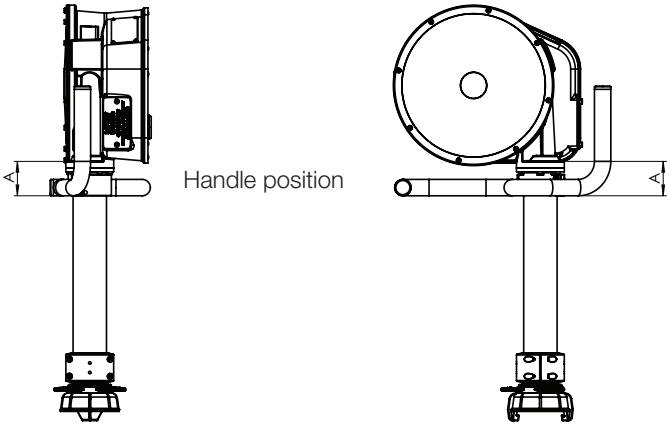
In case of sensor movement trouble, low battery or even when sensor is blocked into the tank, use Emergency Crank to move down or to lift up the sensor to release it from its blocking position.

This emergency crank must only be used or activated if the equipment is installed in vertical position.



11.6 Distance measurement troubles

Distance verification out of tolerance (Refer to section 10.5).
Check the handle position. The handle must be installed according to below figure and distance A verified.



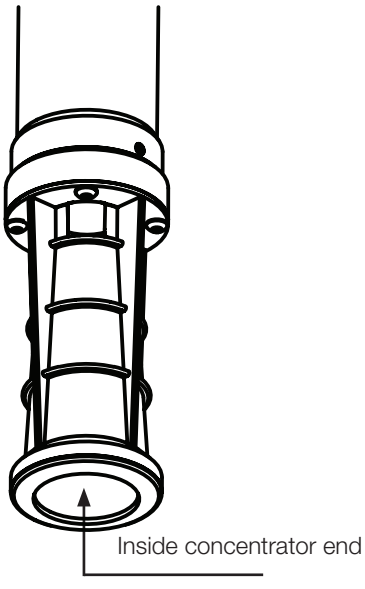
Distance A = 53 mm ± 1mm
= 2 Inch 5/64 ± 3/64

11.7 Sensor errors

Sensor: No reference

a) Check the inside of the concentrator end. If necessary clean and dry it

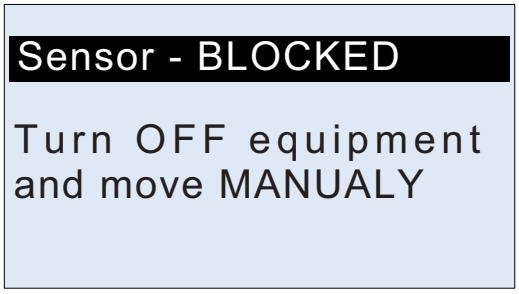
b) If concentrator end is damaged, it must be replaced



Sensor: Too Close

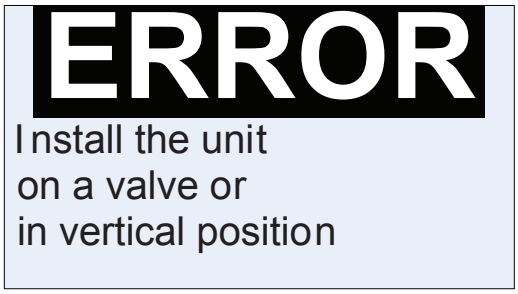
Target must be foam free liquid or horizontal unruffled flat surface

Sensor blocked



Use Emergency Crank to move down and to lift up the sensor in order to release it from its blocking position.
The sensor must be fully lift up manually in its parking position
This emergency crank must only be used or activated if equipment is installed in vertical position.

11.8 Tilt error



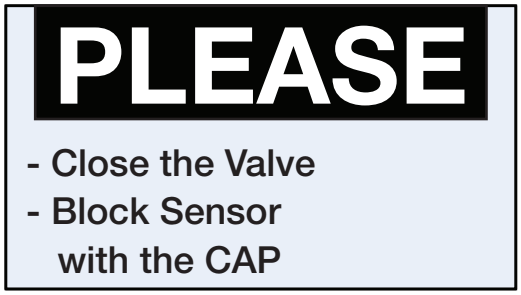
The display shows this message if equipment is not installed in a fully vertical position. A tilt detector prevents any tape movement in order to avoid any damage.

Install the equipment in a vertical position as described in section 8.

11.9 Visual inspection for damaged or missing parts

General condition:	missing parts
Display unit:	5-key control pad, buzzer, front face, screen
Sensing probe:	sensors broken, smashed or damaged
Concentrator:	Clean and dry, not damaged
Mechanical parts:	check housing, handle, storage tube, quick couplerr

11.10 OFF message



Please install the Quick Cap when you remove the equipment from the connection to switch OFF the equipment completely.

12. Specifications

General Specifications

Accuracy of distance measurement	±2 mm (± 0.08” approx.)
Distance measurement range	3.6 m (up to 12 feet approx.)
Distance resolution	0.1, 0.5, 1.0, 5 mm selectable 1/64”, 1/32”, 1/16”, 1/8” selectable
Hazardous areas under normal atmospheric conditions: Maximum Tank Over pressure	80 kPa to 110 kPa -0.1 to +0.2 bar -1.5 psi to 2.9 psi
Ambient temperature range	-20°C to 50°C (-4°F to 122°F)
Process Fluid temperature range	-10°C to 70°C (14°F to 158°F)
Product Range	Crude oil, non corrosive petroleum products
Display Reading	mm or Inch selectable
LCD display	Graphic 128 x 64 dot with automatic backlight
Mechanical connection	Q2 (2”)
Probe diameter	43 mm (1.7”)
Weight	8.1 kg
Battery	Only one type of battery is approved: Duracell MN1500 / Procell PC1500

Hazardous environments approvals

IECEx	Ex ia IIB T4 Ga -20°C < Ta < 50°C
ATEX	II 1 G Ex ia IIB T4 Ga -20°C < Ta < 50°C
Factory Mutual (FM Approval)	CL I, DIV 1, GP C & D, Tamb 50°C CL I, ZN 0, AEx ia IIB T4 Tamb 50°C

Specifications subject to change without notice.

13. Spare parts

13.1 How to proceed

Each spare part is identified by the letters TS followed by a 5 digits number, as for instance.

Proceed as follows to identify the part you need to order:

1) Find the adequate drawing on the next pages;
2) Note the item TS number, ex. TS 20541;
3) With the assistance of the below table, identify its description, ex. "O-Ring ø 56.74 x 3.53".

For each order, please note the item number, its description and the required quantity.

Example: "TS 20541, O-Ring ø 56.74 x 3.53", 1x.

13.2 List of parts descriptions

TS number	Description	Notes
15004	Cap G1/4"	
15021	Storage Tube	Will be delivered with TS 20537
15024	Crank assy	
15025	Magnet holder	
15028	Battery cover assy	
15033	Reference washer	
15034	Spring for washer	
15044	Clamp for handle	
15047	Grip assembly	
15050	Sensor	
15059	Concentrator	
15063	O-Ring ø47.35x1.78	
15070	Display unit assy	
15075	Cap for tube	
15085	Quick Cap	
20537	Female quick coupler	Will be delivered with TS 15021
20541	O-Ring ø 56.74 x 3.53	
37155	Magnet	
37373	Battery holder	
37374	Alkaline Battery AA MN1500	
40004	Hex nut M4	
40301	Socket head cap screw M4x 8	
40302	Socket head cap screw M4x10	
40308	Socket head cap screw M4x20	
40309	Socket head cap screw M4x14	
40754	Socket button head cap screw M3x10	
40777	Socket button head cap screw M3x6	
50714	Carrying case TOMSYS	

13.3 Spare parts drawings

The next pages show the following drawings:

- general assembly, list of the main spare parts
- battery holder assembly, details
- display unit assembly, details
- TOMSYS sensor assembly TS 15050, details
- Cap G1/4" , details

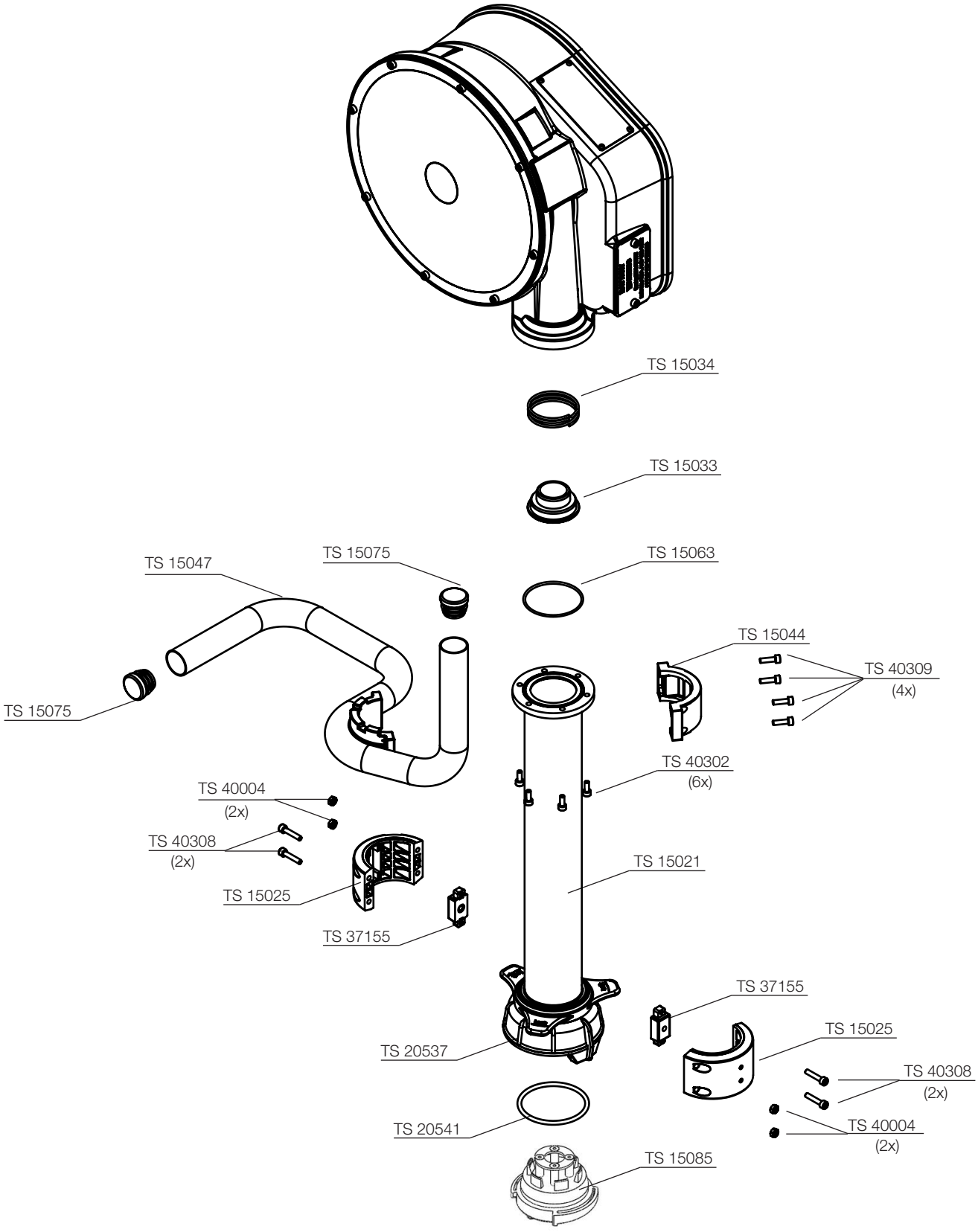


Figure 13-1: general assembly, list of the main spare parts

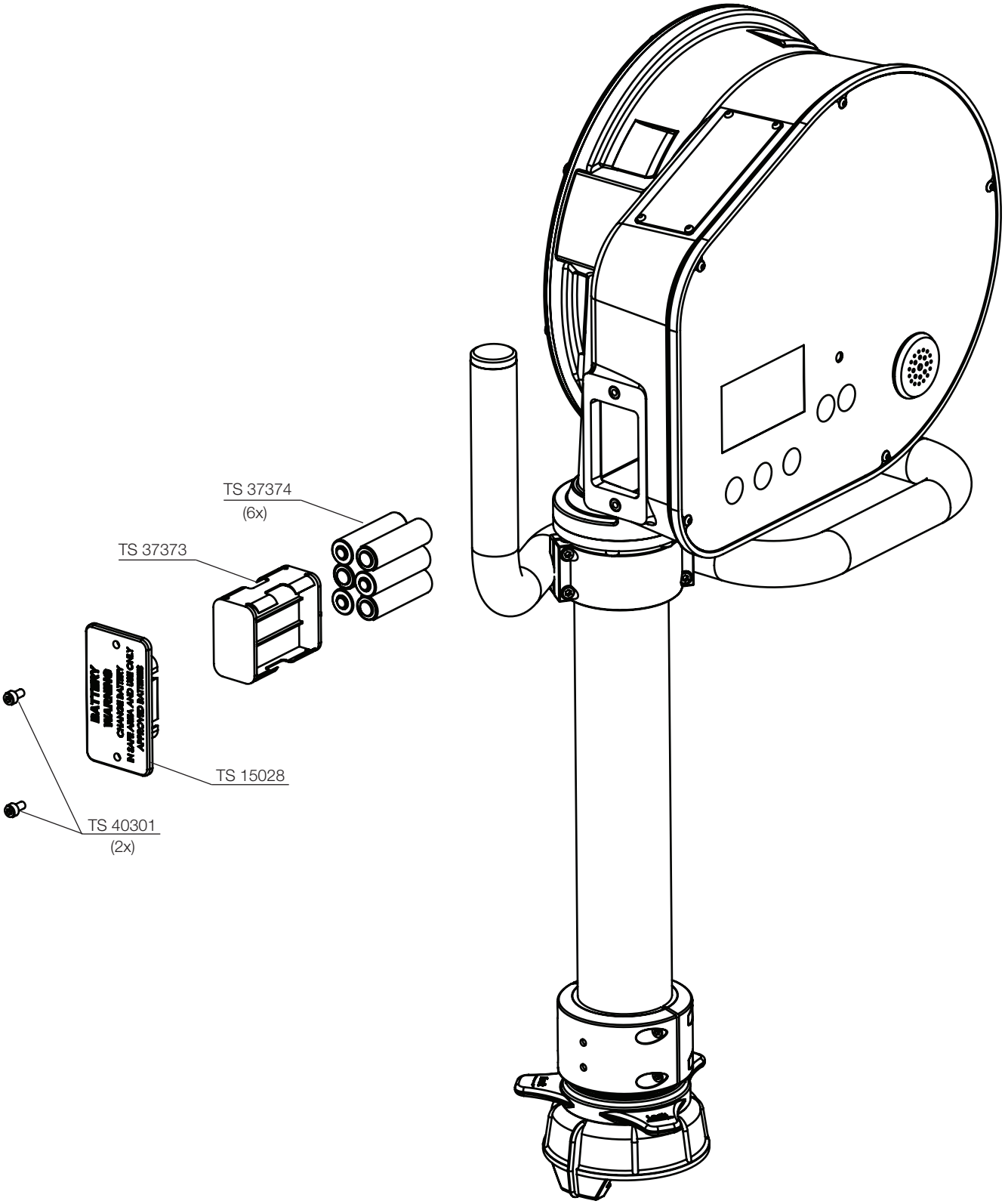


Figure 13-2: battery holder assembly, details

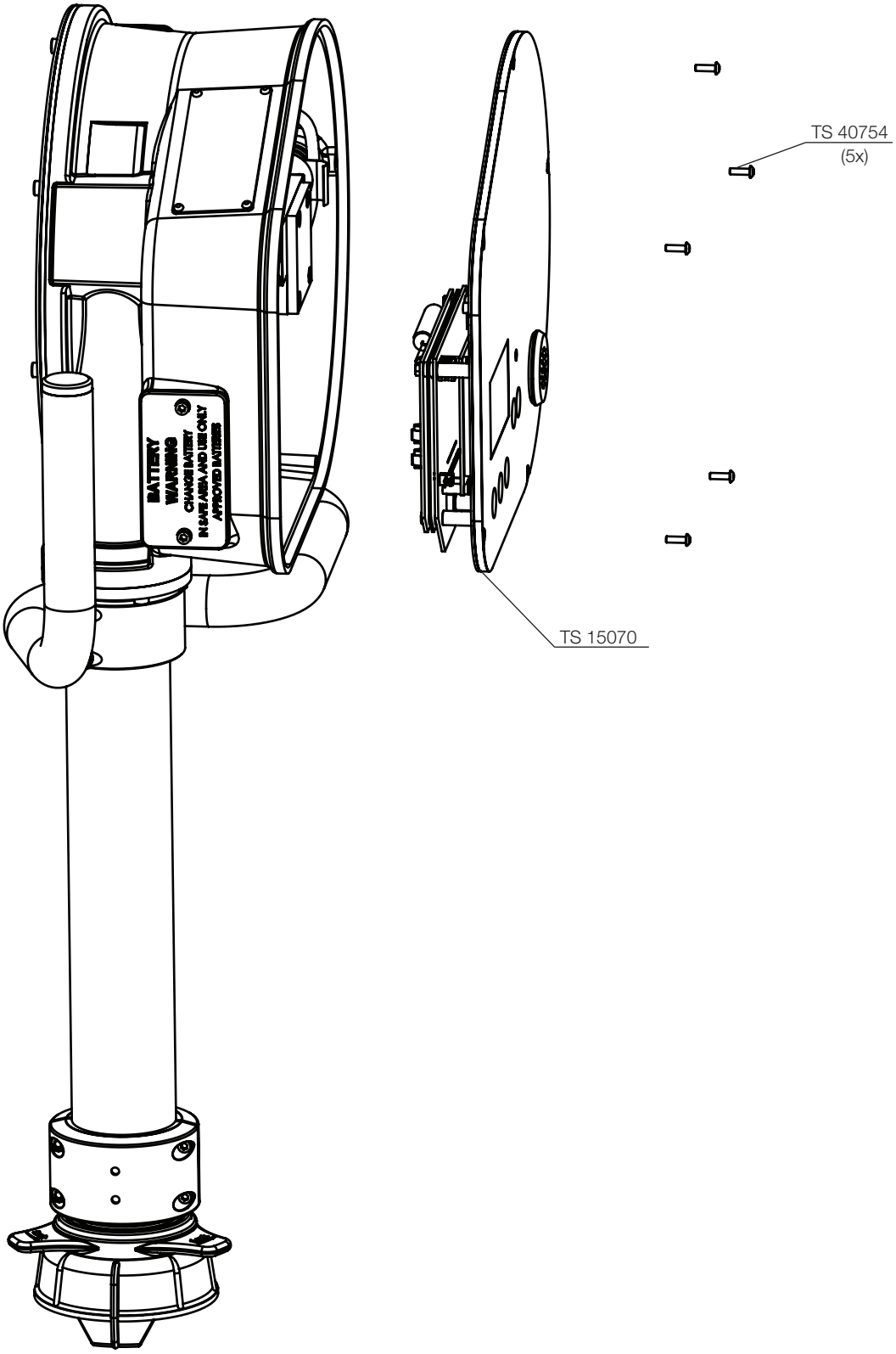


Figure 13-3: display unit assembly, details

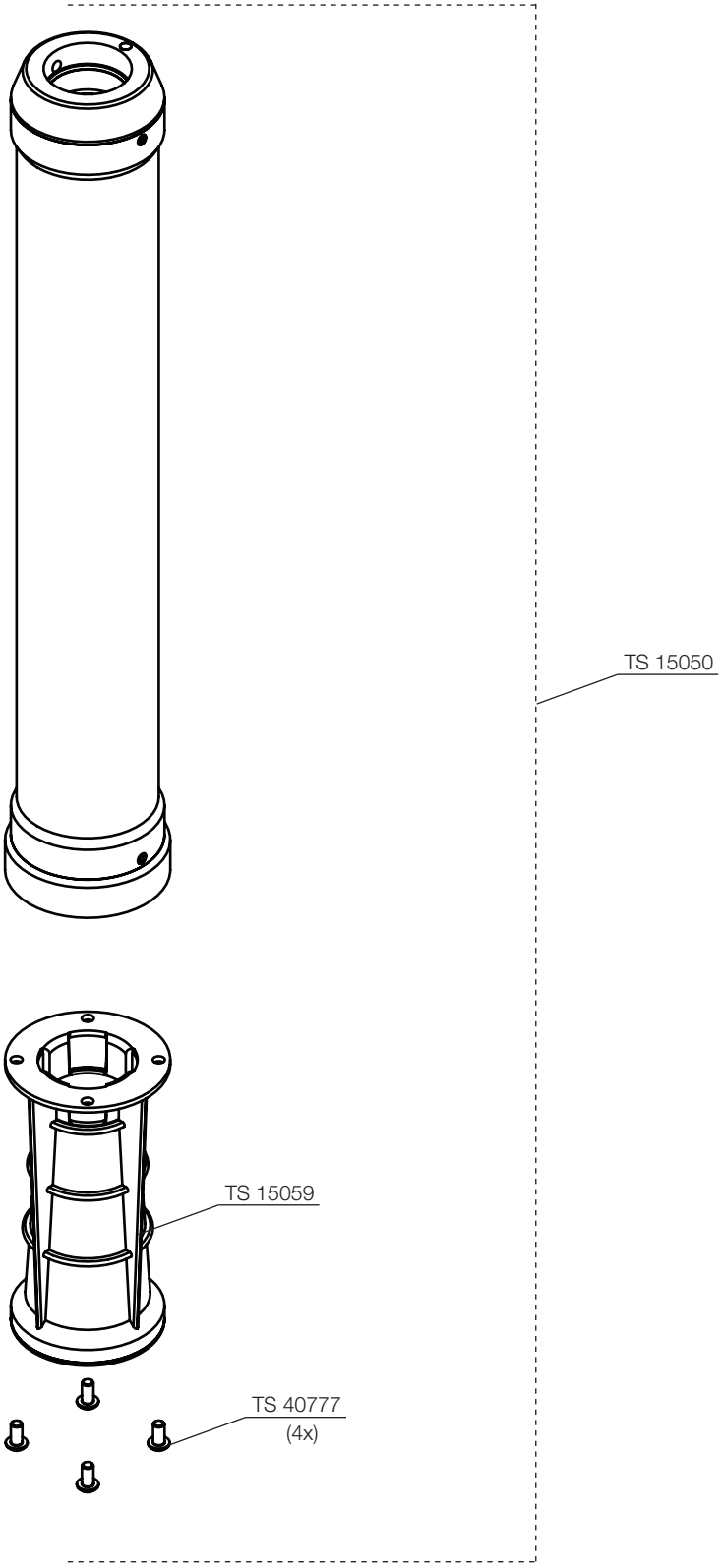


Figure 13-4: TOMSYS sensor assembly TS 15050, details

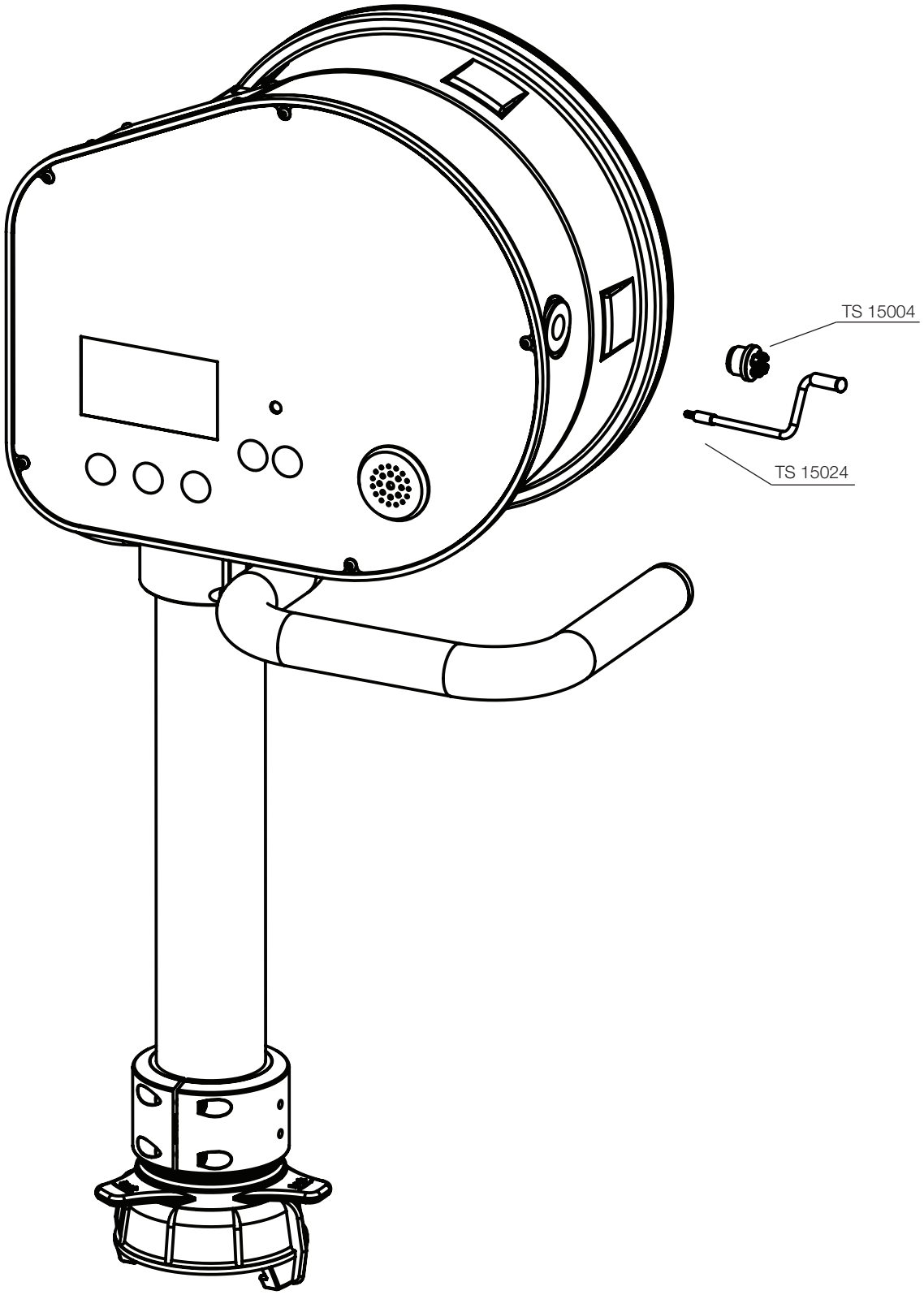


Figure 13-5: Cap G1/4" , details

14. Valves drawings

14.1 Valves drawings list

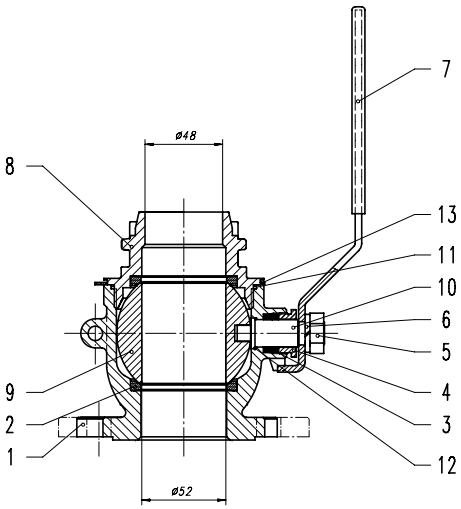
Refer to the table and find the drawing in next section.

Description	ND	TS
Valve C2-SS-W, 2” flange DUJ, weather cap	20291	10083
Valve C2-SS-SEC, 2” flange DUJ, security cover	20287	10082
Valve C2-SS-BL, 2” flange DUJ, blind cover	20288	10081
Valve C2-SS-BL, 2” female, blind cover	30596	10085
Valve C2-SS-W, 2” female, weather cap	30391	10076
Valve C2-SS-SEC, 2” female, security cover	30374	10078
Deck valve A-4”/2”/1” SS	30812	98172
Security cover with lock	40495	10408
Cover with weather cap	41040	10415
Weather cap assy	40543	22609
Blind cover	41034	10414

14.2 Drawings

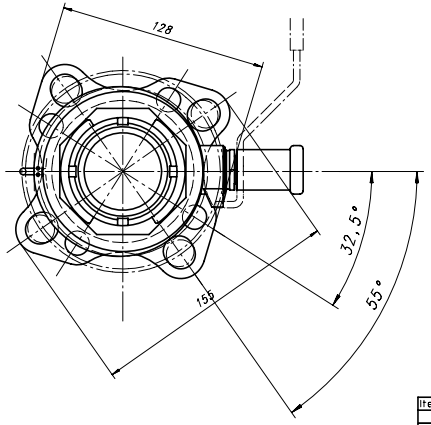
See next pages.

TS 10413
ND 20283

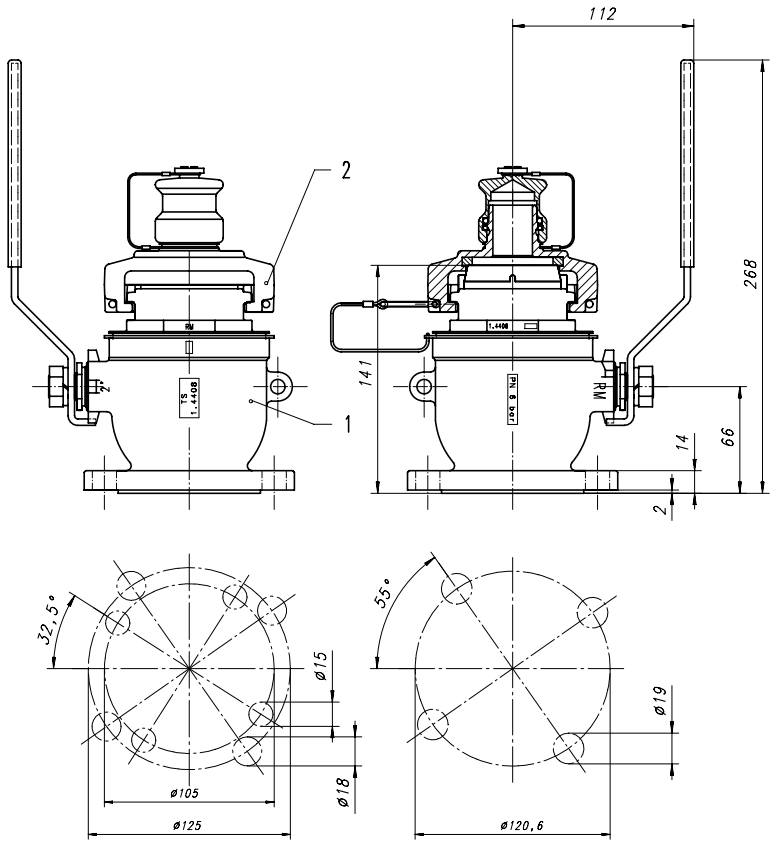


Valve fits on flange:

DIN PN10 DN50
DIN PN16 DN50
DIN PN25 DN50
DIN PN40 DN50
JIS 5K 50
JIS 10K 50
ANSI 150lbs 2"



Item	Qt	Weight	Description	Material	TS #	ND #
1	1	0	Body DUJ	1.4408	22649	-
2	2	0	Seat ø 53/66 x 6	PTFE	22630	40772
3	1	0	Stem packing ø 17/23.9 x 8.5 (2pces)	PTFE	22631	40773
4	1	0	Gland	AISI 304	22632	40774
5	1	0	Nut	AISI 304	22633	-
6	1	0	Spring washer	AISI 304	22634	-
7	1	207	Handle	AISI304/PE	22635	40775
8	1	0	End cap	1.4408	22650	-
9	1	0	Ball DIN	1.4436	22645	40780
10	1	0	Stem	AISI 316	22638	40777
11	1	0	Gasket ø 86/90 x 2.5	PTFE	22640	40778
12	1	0	Gasket ø 17/19 x 1	PTFE	22641	40779
13	1	0	Washer for cable on valve	AISI 304	22648	40996



Item	Qt	Weight	Description	Material	TS #	ND #
1	1	4480	Compact valve C2 DUJ	-	10413	20283
2	1	590	Cover with weather cap	-	10415	41040

TOLERANCES UNLESS OTHERWISE SPECIFIED

Nom.Size	Over		6	30	100	300	1000	Angles
Fit	To	6	30	100	300	1000	2000	
Fine	±	0,05	0,1	0,15	0,2	0,3	0,5	0,1°

Weight: 5070 Th. 0 Eff.

ISSUE 2 : 16.2.1999

REMOVE ALL BURRS AND SHARP EDGES

1:2

MPSA 3110

Drawn: UPR 27.11.1996 | Control: CPI 06.01.1997

Replacement for: ND | Replaced by: ND

Valves

HERMetic Compact Valve C2-SS-W 2" flange DUJ

TS 10083

ND 20291

REF ND

Modification | Visa | Date | Is

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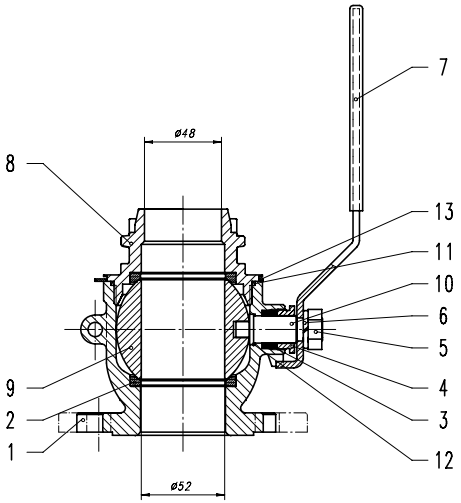
TS 10413
ND 20283



Valve fits on flange:

DIN PN10 DN50

DIN PN16 DN50

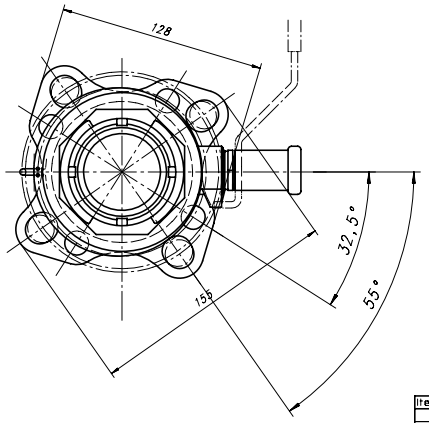
DIN PN25 DN50

DIN PN40 DN50

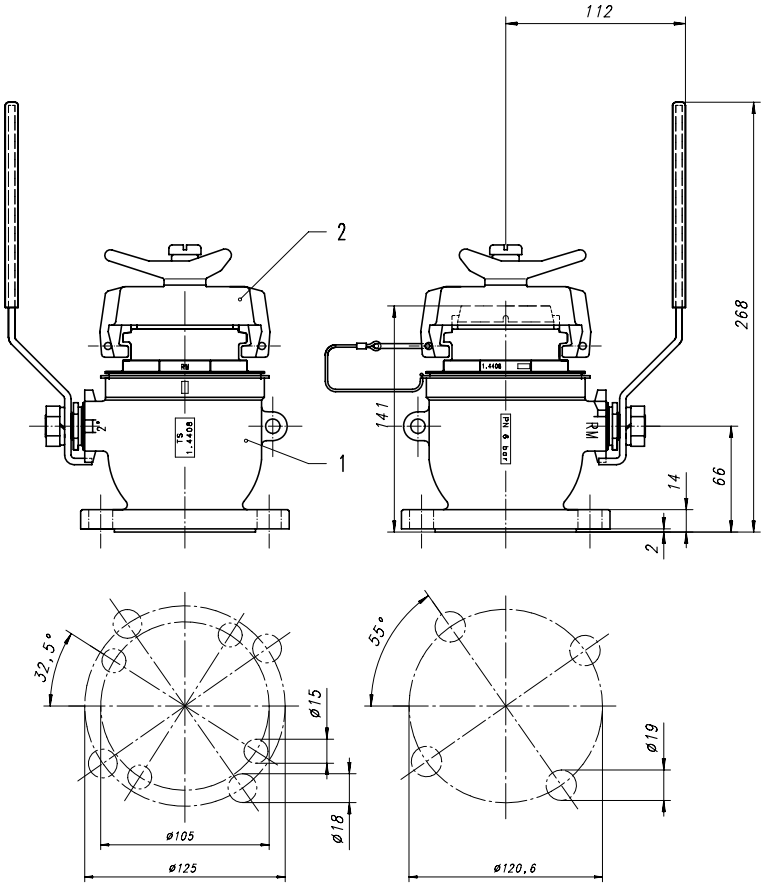
JIS 5K 50

JIS 10K 50

ANSI 150lbs 2"



Item	Qt	Weight	Description	Material	TS #	ND #
1	1	0	Body DUJ	1.4408	22649	-
2	2	0	Seat ø 53/66 x 6	PTFE	22630	40772
3	1	0	Stem packing ø 17/23.9 x 8.5 (2pces)	PTFE	22631	40773
4	1	0	Gland	AISI 304	22632	40774
5	1	0	Nut	AISI 304	22633	-
6	1	0	Spring washer	AISI 304	22634	-
7	1	207	Handle	AISI304/PE	22635	40775
8	1	0	End cap	1.4408	22650	-
9	1	0	Ball DIN	1.4436	22645	40780
10	1	0	Stem	AISI 316	22638	40777
11	1	0	Gasket ø 86/90 x 2.5	PTFE	22640	40778
12	1	0	Gasket ø 17/19 x 1	PTFE	22641	40779
13	1	0	Washer for cable on valve	AISI 304	22648	40996



Item	Qt	Weight	Description	Material	TS #	ND #
1	1	4480	Compact valve C2 DUJ	-	10413	20283
2	1	957	Security cover w/lock	-	10408	40495

TOLERANCES UNLESS OTHERWISE SPECIFIED

Nom.Size	Over		6	30	100	300	1000	Angles
Fit	To	6	30	100	300	1000	2000	
Fine	±	0,05	0,1	0,15	0,2	0,3	0,5	0,1°

REMOVE ALL BURRS AND SHARP EDGES

Weight: 5437 Th. 0 Eff.

1:2

Drawn: UPR 27.11.1996

Control: CPI 06.01.1997

ISSUE 2 : 16.2.1999

MPSA 3110

Replacement for: ND

Replaced by: ND

Valves

HERMetic Compact Valve C2-SS-SEC 2" flange DUJ

TS 10082

ND 20287

REF ND

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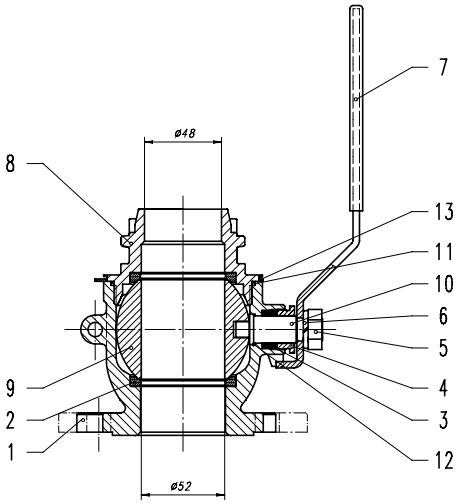
Modification | Visa | Date | Is

TS 10413
ND 20283



Valve fits on flange:

DIN PN10 DN50

DIN PN16 DN50

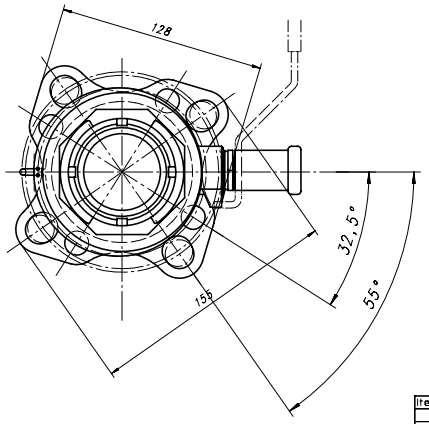
DIN PN25 DN50

DIN PN40 DN50

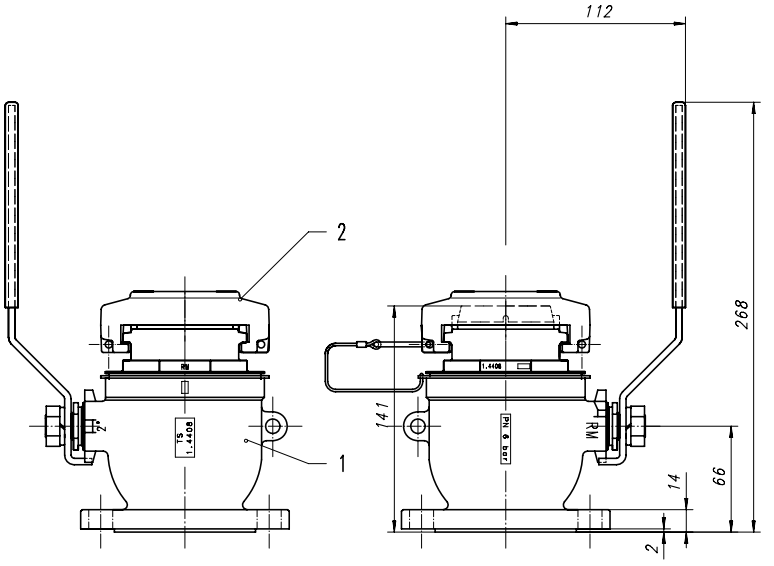
JIS 5K 50

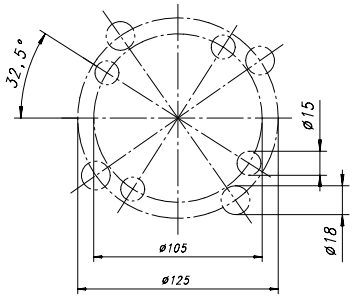
JIS 10K 50

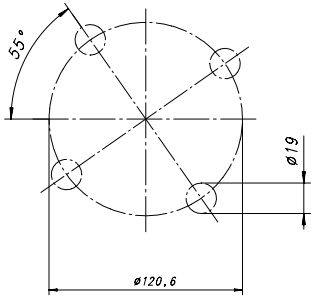
ANSI 150lbs 2"



Item	Qt	Weight	Description	Material	TS #	ND #
1	1	0	Body DUJ	1.4408	22649	-
2	2	0	Seat ø 53/66 x 6	PTFE	22630	40772
3	1	0	Stem packing ø 17/23.9 x 8.5 (2pces)	PTFE	22631	40773
4	1	0	Gland	AISI 304	22632	40774
5	1	0	Nut	AISI 304	22633	-
6	1	0	Spring washer	AISI 304	22634	-
7	1	207	Handle	AISI304/PE	22635	40775
8	1	0	End cap	1.4408	22650	-
9	1	0	Ball DIN	1.4436	22645	40780
10	1	0	Stem	AISI 316	22638	40777
11	1	0	Gasket ø 86/90 x 2.5	PTFE	22640	40778
12	1	0	Gasket ø 17/19 x 1	PTFE	22641	40779
13	1	0	Washer for cable on valve	AISI 304	22648	40996







Item	Qt	Weight	Description	Material	TS #	ND #
1	1	4480	Compact valve C2 DUJ	-	10413	20283
2	1	370	Blind cover assy	-	10414	41034

TOLERANCES UNLESS OTHERWISE SPECIFIED

Nom.Size	Over		6	30	100	300	1000	Angles
Fit	To	6	30	100	300	1000	2000	
Fine	±	0,05	0,1	0,15	0,2	0,3	0,5	0,1°

REMOVE ALL BURRS AND SHARP EDGES

Weight: 4850 Th. 0 Eff.

1:2

ISSUE 2 : 16.2.1999

MPSA 3110

Drawn: UPR 27.11.1996 | Control: CPI 06.01.1997

Replacement for: ND | Replaced by: ND

Valves

HERMetic Compact Valve C2-SS-BL 2" flange DUJ

TS 10081

ND 20288

REF ND

Modification | Visa | Date | Is

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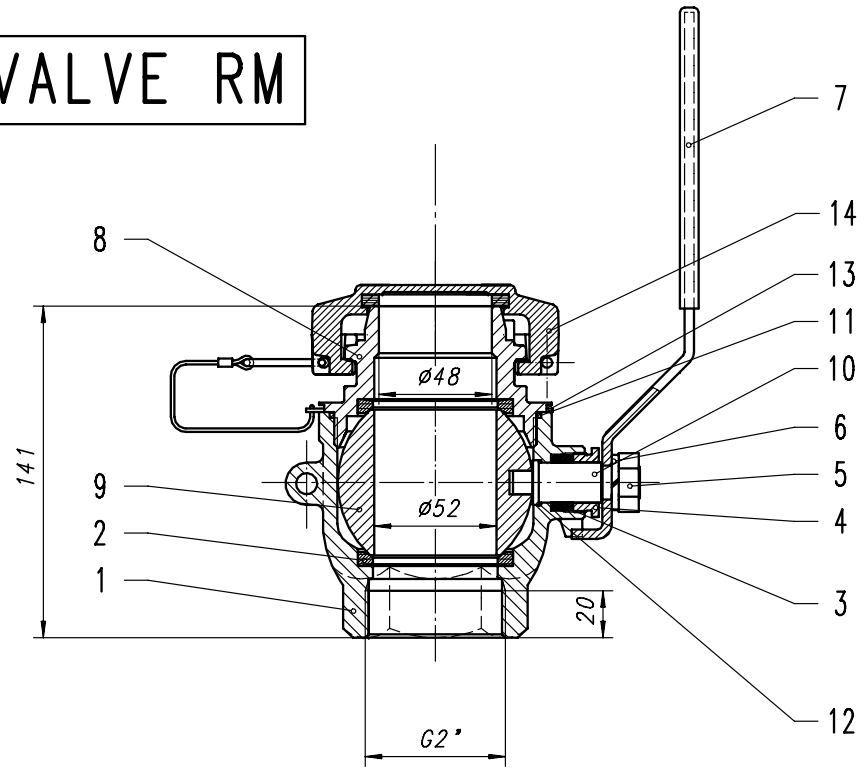
VALVE RM



Item	Qt	Weight	Description	Material	TS #	ND #
1	1	0	Body 2" female	1.4408	22646	-
2	2	0	Seat ø 53/66 x 6	PTFE	22630	40772
3	1	0	Stem packing ø 17/23.9 x 8.5 (2pces)	PTFE	22631	40773
4	1	0	Gland	AISI 304	22632	40774
5	1	0	Nut	AISI 304	22633	-
6	1	0	Spring washer	AISI 304	22634	-
7	1	207	Handle	AISI304/PE	22635	40775
8	1	0	End cap	1.4408	22650	-
9	1	0	Ball 2"	1.4436	22645	40780
10	1	0	Stem	AISI 316	22638	40777
11	1	0	Gasket ø 86/90 x 2.5	PTFE	22640	40778
12	1	0	Gasket ø 17/19 x 1	PTFE	22641	40779
13	1	0	Washer for cable on valve	AISI 304	22648	40996

Item	Qt	Weight	Description	Material	TS #	ND #
14	1	370	Blind cover assy	-	10414	41034

TOLERANCES UNLESS OTHERWISE SPECIFIED									
Norm.Size	Over		6	30	100	300	1000	Angles
Fit	To	6	30	100	300	1000	2000	
Fine	±	0,05	0,1	0,15	0,2	0,3	0,5	0,1°

REMOVE ALL BURRS AND SHARP EDGES

Weight: Th. 4300 Eff.

1 : 2

Drawn: UPR 21.04.1994

Control:

ISSUE 2 : 25.6.1999

MPSA 4110

Replacement for: ND

Replaced by: ND

Valves

HERMetic Compact Valve C2-SS-BL 2" Female

TS 10085

ND 30596

REF ND

Modification | Visa | Date | Is

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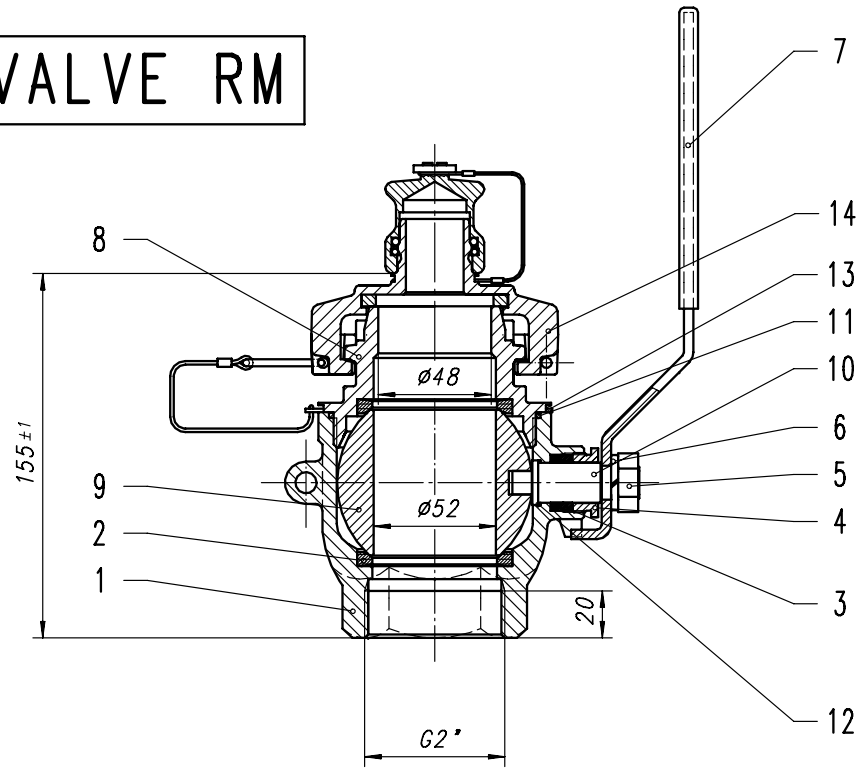
Honeywell

VALVE RM



Item	Qt	Weight	Description	Material	TS #	ND #
1	1	0	Body 2" female	1.4408	22646	-
2	2	0	Seat ø 53/66 x 6	PTFE	22630	40772
3	1	0	Stem packing ø 17/23.9 x 8.5 (2pces)	PTFE	22631	40773
4	1	0	Gland	AISI 304	22632	40774
5	1	0	Nut	AISI 304	22633	-
6	1	0	Spring washer	AISI 304	22634	-
7	1	207	Handle	AISI304/PE	22635	40775
8	1	0	End cap	1.4408	22650	-
9	1	0	Ball 2"	1.4436	22645	40780
10	1	0	Stem	AISI 316	22638	40777
11	1	0	Gasket ø 86/90 x 2.5	PTFE	22640	40778
12	1	0	Gasket ø 17/19 x 1	PTFE	22641	40779
13	1	0	Washer for cable on valve	AISI 304	22648	40996

+ Pos. 13	Modification
upr	Visa
12.2.96	Date
-2	Is

Item	Qt	Weight	Description	Material	TS #	ND #
14	1	590	Cover with weather cap	-	10415	41040

TOLERANCES UNLESS OTHERWISE SPECIFIED									
Norm.Size	Over		6	30	100	300	1000	Angles
Fit	To	6	30	100	300	1000	2000	
Fine	±	0,05	0,1	0,15	0,2	0,3	0,5	0,1°

REMOVE ALL BURRS AND SHARP EDGES

Weight: 4390 Eff.

Drawn: UPR 21.04.1994

Control:

1 : 2

ISSUE 3 : 25.6.1999

MPSA 4110

Replacement for: ND

Replaced by: ND

Valves

HERMetic Compact Valve C2SS
2" Female

TS 10076

ND 30391

REF ND

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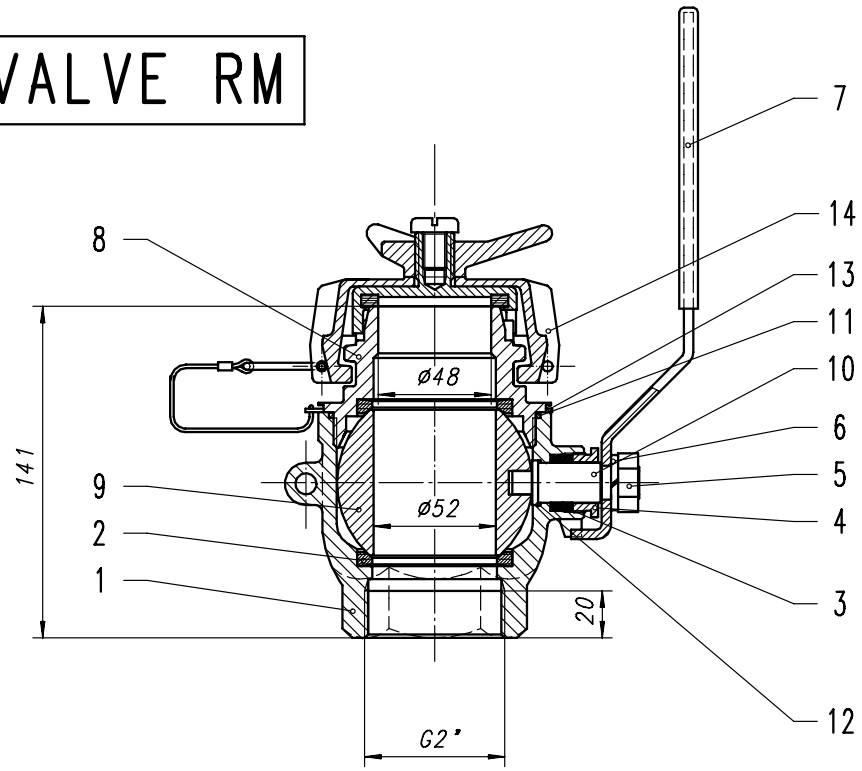
VALVE RM



Item	Qt	Weight	Description	Material	TS #	ND #
1	1	0	Body 2" female	1.4408	22646	-
2	2	0	Seat ø 53/66 x 6	PTFE	22630	40772
3	1	0	Stem packing ø 17/23.9 x 8.5 (2pces)	PTFE	22631	40773
4	1	0	Gland	AISI 304	22632	40774
5	1	0	Nut	AISI 304	22633	-
6	1	0	Spring washer	AISI 304	22634	-
7	1	207	Handle	AISI304/PE	22635	40775
8	1	0	End cap	1.4408	22650	-
9	1	0	Ball 2"	1.4436	22645	40780
10	1	0	Stem	AISI 316	22638	40777
11	1	0	Gasket ø 86/90 x 2.5	PTFE	22640	40778
12	1	0	Gasket ø 17/17 x 1	PTFE	22641	40779
13	1	0	Washer for cable on valve	AISI 304	22648	40996

+ Pos. 13	Modification
upr	Visa
12.2.96	Date
-2	Is

Item	Qt	Weight	Description	Material	TS #	ND #
14	1	957	Security cover w/lock	-	10408	40495

TOLERANCES UNLESS OTHERWISE SPECIFIED

Norm.Size	Over		6	30	100	300	1000	Angles
Fit	To	6	30	100	300	1000	2000	
Fine	±	0,05	0,1	0,15	0,2	0,3	0,5	0,1°

REMOVE ALL BURRS AND SHARP EDGES

Weight: 4746 Eff.

Drawn: UPR 21.04.1994 Control:

1 : 2

ISSUE 3 : 25.6.1999

MPSA 4110

Replacement for: ND

Replaced by: ND

Valves

HERMetic Compact Valve C2-SS-SEC 2" Female

TS 10078

ND 30374

REF ND

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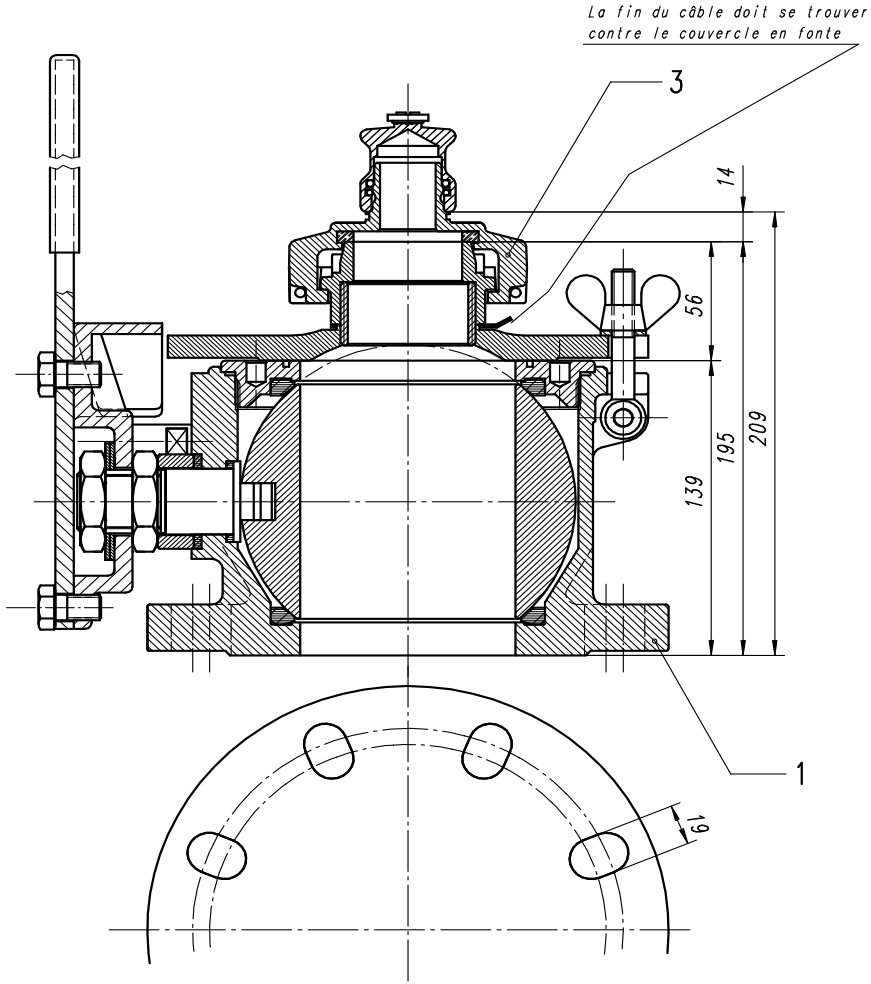
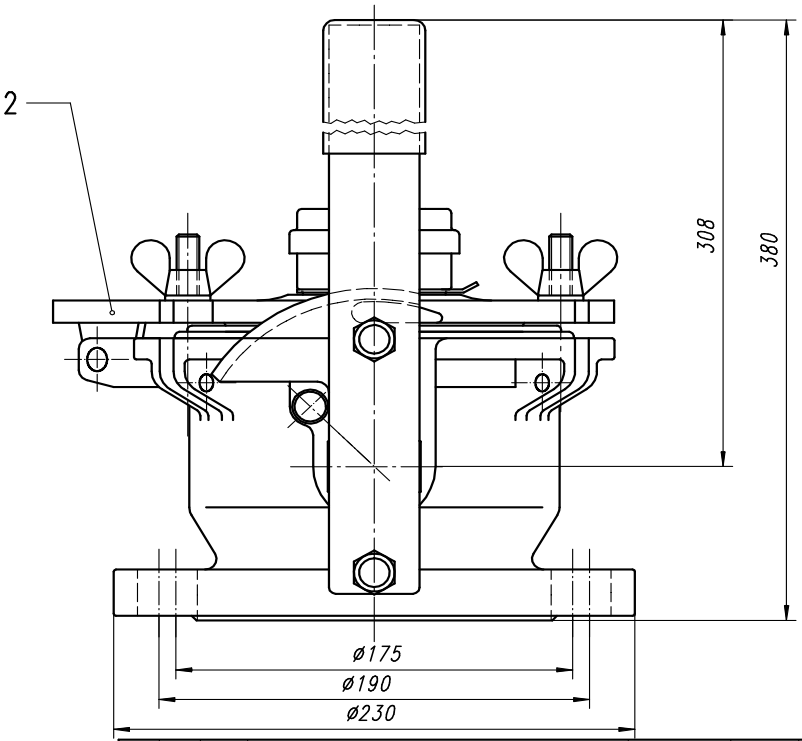
Honeywell





Flange: ANSI 150lbs. 4" (100mm)
JIS 10K 100mm
DIN PN16 DN 100

Item	Qt	Weight	Description	Material	TS #	ND #
1	1	0	Valve 4" without cover	-	10420	20365
2	1	0	Cover assy	-	98172A	30811
3	1	0	Cover with weather cap	-	10415	41040

TOLERANCES UNLESS OTHERWISE SPECIFIED

Norm.Size	Over		6	30	100	300	1000	Angles
Fit	To	6	30	100	300	1000	2000	
Fine	±	0,05	0,1	0,15	0,2	0,3	0,5	0,1°

REMOVE ALL BURRS AND SHARP EDGES

Weight: 0 Th. 0 Eff.

1:2

ISSUE 1 : 8.2.2006

MPSA

Drawn: cpi 12.09.1995

Control:

Replacement for: ND

Replaced by: ND

Modification | Visa | Date

Speciality
HERMetic Deck Valve A-4"/2"/1"

TS 98172

ND 30812

REF ND

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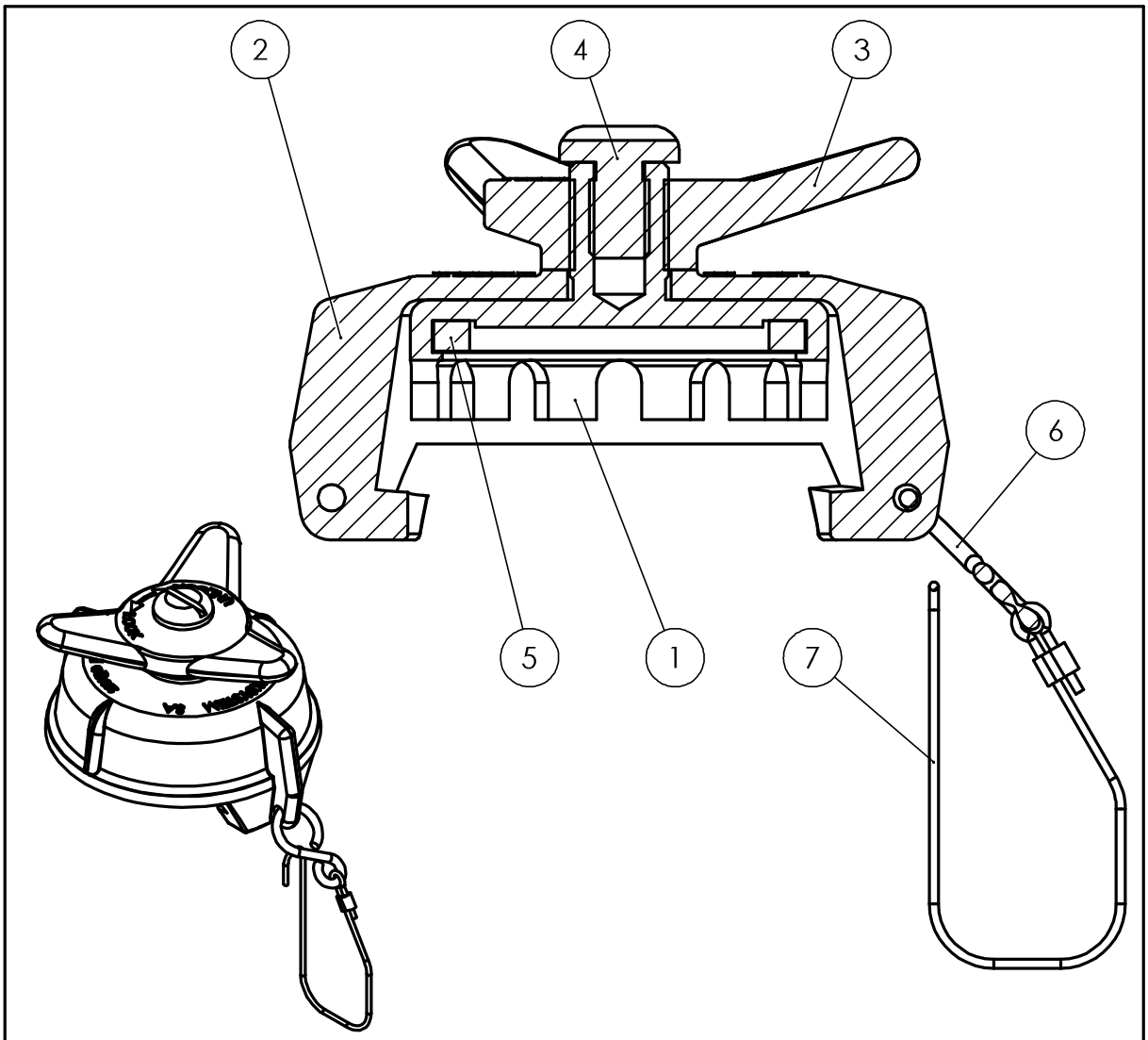

Item	Qty	Weight	Description	Material	TS	ND
1	1	222.4	Gasket holder	CF8M	22714	40492
2	1	443.1	Cover	CF8M	22715	30360
3	1	208.3	Lock G3/8""	CF8M	22716	40521
4	1	21.9	Slotted pan head screw	A4	40708	41004
5	1	5.3	Gasket	FKM 70° shore	22713	41177
6	1	4.4	" S " Holder	1.4301	11902	40537
7	1	0.8	Short cable assy	1.4435	55135	40999

TOLERANCES UNLESS OTHERWISE SPECIFIED

Norm.Size	Over		6	30	100	300	1000	Angles
Fit	To	6	30	100	300	1000	2000	
Fine	±	0,05	0,1	0,15	0,2	0,3	0,5	0,1°

REMOVE ALL BURRS AND SHARP EDGES

Drawn: CPI 03.08.2011

Control:

Weight: 906.1 Eff.

1:1

ISSUE 3 : 03.08.2011

MPSA YYYN

Replacement for: ND

Replaced by: ND

Valves

Security cover assembly

TS 10408

ND 40495

REF ND

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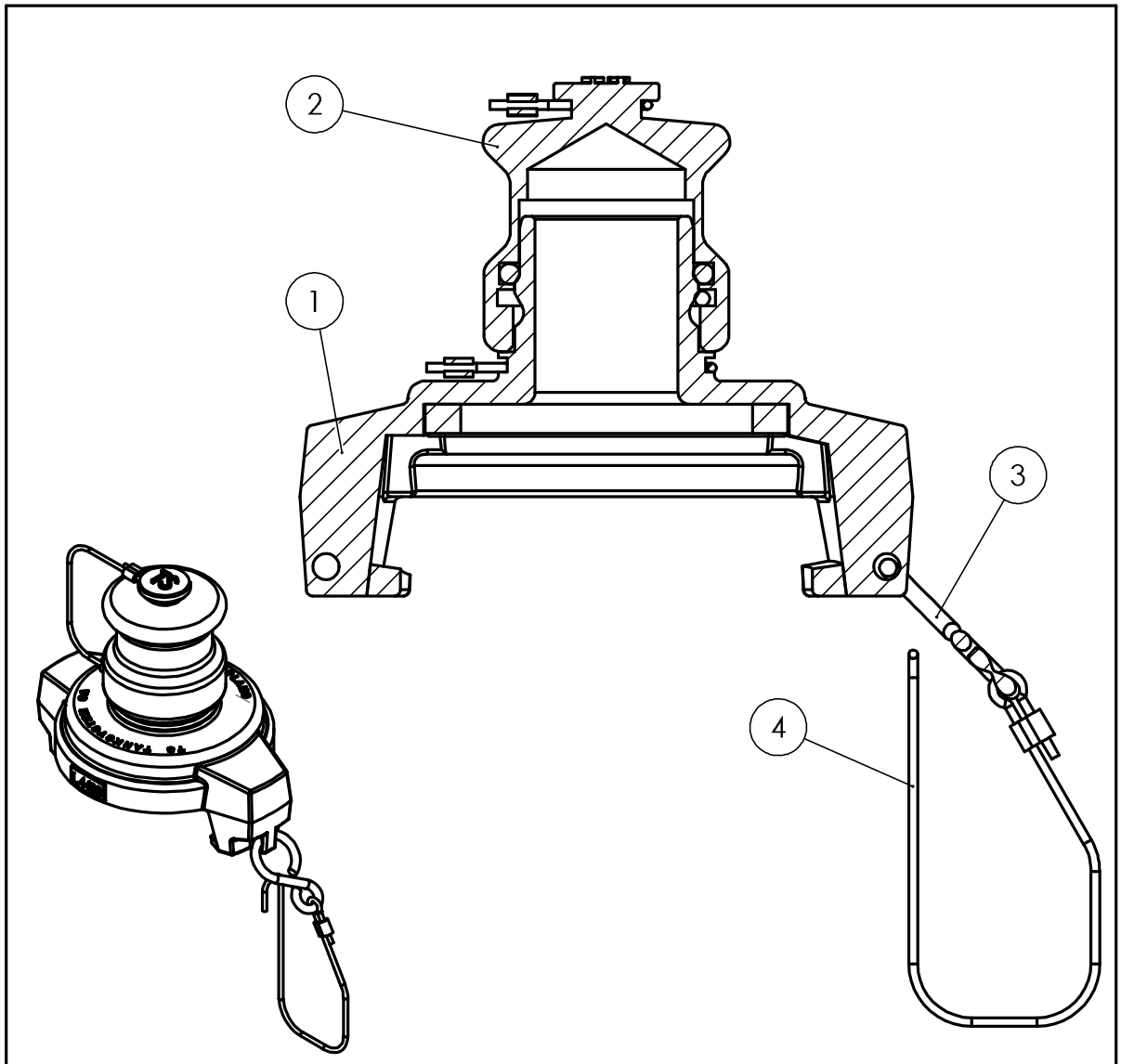

Item	Qty	Weight	Description	Material	TS	ND
1	1	414.7	Connector 1" - 2"	-	22563	41032
2	1	166.8	Weather cap assy	-	22609	40543
3	1	4.4	" S " Holder	1.4301	11902	40537
4	1	0.8	Short cable assy	1.4435	55135	40999

TOLERANCES UNLESS OTHERWISE SPECIFIED									Weight:	ISSUE 1 : 03.08.2011
Norm.Size	Over		6	30	100	300	1000	Angles	586.7 Eff.	
Fit	To	6	30	100	300	1000	2000			MPSA YYYN
Fine	±	0,05	0,1	0,15	0,2	0,3	0,5	0,1°		
REMOVE ALL BURRS AND SHARP EDGES									1:1	
Drawn: CPI 03.08.2011			Control:							Replacement for: ND / Replaced by: ND

HERMetic Deck Valves C2SS

Cover with weather cap

TS 10415

ND 41040

REF ND 30391/20291

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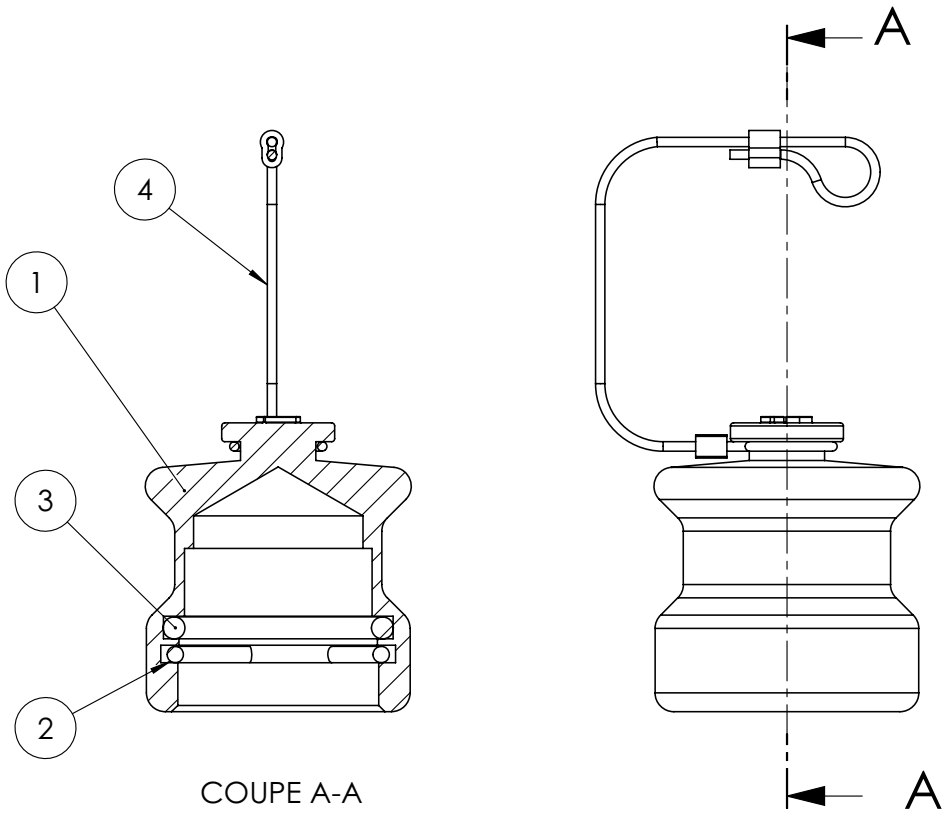

COUPE A-A

Item	Qty	Weight	Description	Material	TS	ND
1	1	160.5	Cap for nippel	CF8M	22608	30396
2	1	3.8	Clip	AISI 301 - 1.4310	40762	40542
3	1	1.0	O-Ring ø 29,7 x 3,5	FKM	11132	
4	1	1.3	Cable assy		55112	40525

TOLERANCES UNLESS OTHERWISE SPECIFIED

Norm.Size	Over		6	30	100	300	1000	Angles
Fit	To	6	30	100	300	1000	2000	
Fine	±	0,05	0,1	0,15	0,2	0,3	0,5	0,1°

REMOVE ALL BURRS AND SHARP EDGES

Drawn: CPI 19.05.2009

Control:

Weight: 166.6 Eff.

1:1

ISSUE 1 : 19.05.2009

MPSA YYYN

Replacement for: ND

Replaced by: ND

Valves

Weather cap assy

TS 22609

ND 40543

REF ND

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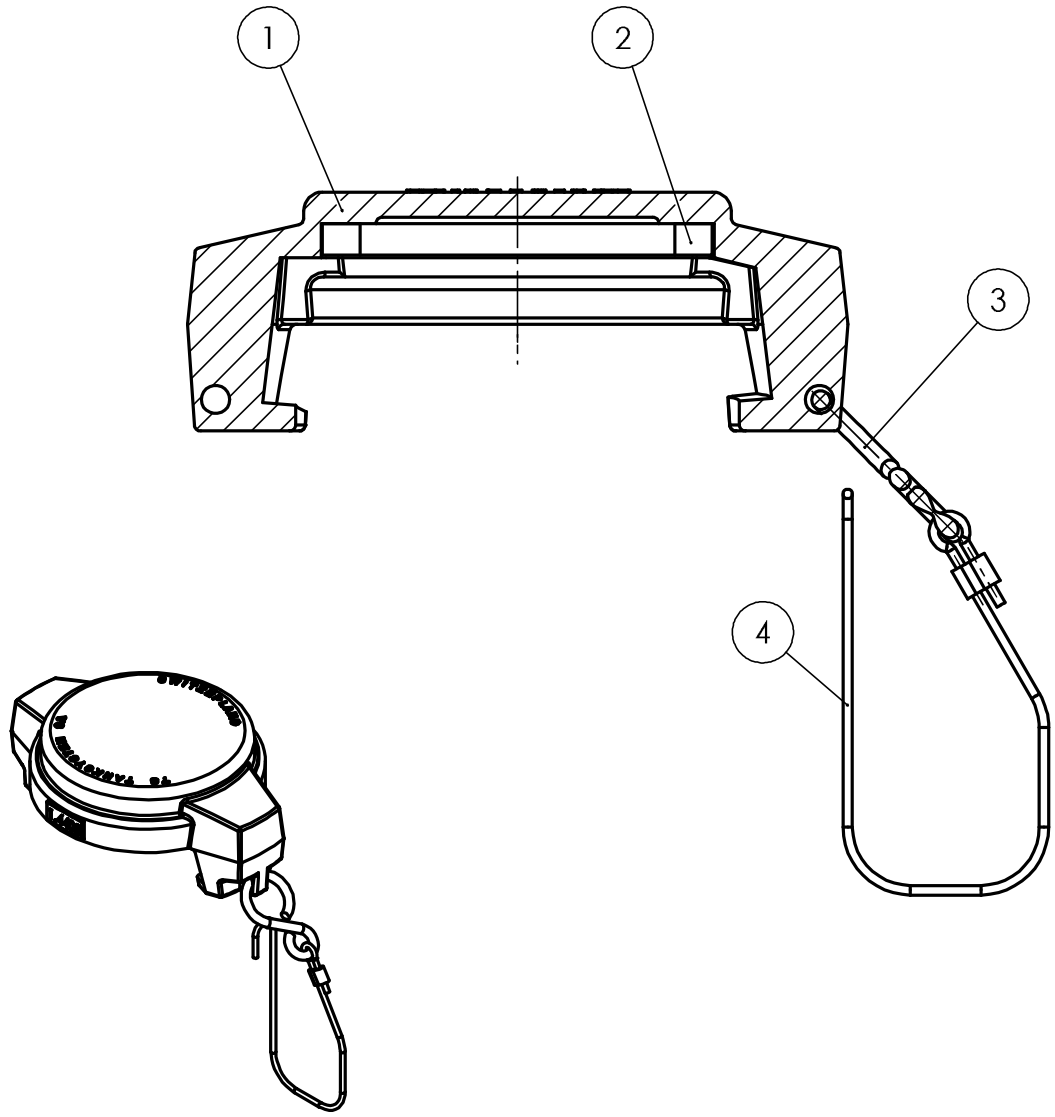

Item	Qty	Weight	Description	Material	TS	ND
1	1	376.2	Blind cover	CF8M	22651	41024
2	1	5.3	Gasket	FKM 70° shore	22713	41177
3	1	4.4	" S " Holder	1.4301	11902	40537
4	1	0.8	Short cable assy	1.4435	55135	40999

TOLERANCES UNLESS OTHERWISE SPECIFIED									
Norm.Size	Over		6	30	100	300	1000	Angles
Fit	To	6	30	100	300	1000	2000	
Fine	±	0,05	0,1	0,15	0,2	0,3	0,5	0,1°

REMOVE ALL BURRS AND SHARP EDGES

Drawn: CPI 03.08.2011

Control:

Weight: 386.7 Eff.

1:1

ISSUE 1 : 03.08.2011

MPSA
YYYN

Replacement for: ND

Replaced by: ND

Valves

Blind cover assy

TS 10414

ND 41034

REF ND 20288/30596

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15. Declaration of conformity

Honeywell

Honeywell Enraf Tanksystem SA Author: QD	Declaration of Conformity CE / IECEx	Issue: 1 TSB_7028_E.doc May 25, 2011 1 of 1

Apparatus Identification **HERMetic TOMSYS**

Apparatus Classification Measurement Equipment

Statement of Conformity

Based on sample product test results using appropriate standards (industrial environment), and in accordance with the following EC Directives & IEC Standards, we, Enraf Tanksystem SA, hereby declare under our sole responsibility that the HERMetic TOMSYS is in conformity with:

EC ATEX Directive 94/9/EC, Equipment and protective systems intended for use in potentially explosive atmospheres (ATEX).
EC Type Examination Certificate: KEMA 10ATEX0091X
II 1 G Ex ia IIB T4 Ga -20°C < T_a < +50°C
(maximum fluid process temperature +70°C)

EC Directive 89/336/EEC, Electromagnetic Compatibility (EMC).

IEC 60079, Electrical apparatus for explosive gas atmospheres.
IECEx Type Examination Certificate: IECEx KEM 10.0042X
Ex ia IIB T4 Ga

Sample Product Testing for ATEX / IECEx

Tested by	Kema Quality B.V., Utrechtseweg 310, P.O. Box 5185, 6812 AR Arnhem, The Netherlands
Notified Body	Kema Quality B.V., Utrechtseweg 310, P.O. Box 5185, 6812 AR Arnhem, The Netherlands
Notified Body Number	0344
ATEX Standards Used	EN 60079-0:2009, Explosive atmospheres – Part 0: Equipment - General requirements EN 60079-11:2007, Explosive atmospheres – Part 11: Equipment protection by intrinsic safety "i" EN 60079-26:2007, Explosive atmospheres – Part 26: Equipment with equipment protection
Report ID	NL/KEM/ExTR10.0040/01
IECEx Standards Used	IEC 60079-0, ed 5.0 (2007-10), Explosive atmospheres – Part 0: Equipment - General requirements IEC 60079-11, ed 5.0 (2006-07), Explosive atmospheres – Part 11: Equipment protection by intrinsic safety "i" IEC 60079-26, ed.2.0 (2006-08), Explosive atmospheres – Part 26: Equipment with equipment protection
Report ID	NL/KEM/ExTR10.0040/01
Quality Assurance notification & IECEx Quality Assessment Report	Baseefa ATEX 1536
Notified Body	Baseefa, Rockhead Business Park, Staden Lane, Buxton, Derbyshire, SK17 9RZ. United Kingdom
Notified Body Number	1180

Sample Product Testing for EMC

Tested by	Montena EMC SA, Zône industrielle, 1728 Rossens, Switzerland
Standards Used	EN61326-1, (2006-05) Electrical equipment for measurement, control and laboratory use - EMC requirements - General requirements Germanischer Lloyd VI 7 2 Section 3 B §15 – 22 : 2003, Guidelines for the Performance of Type Approvals - Test Requirements for Electrical / Electronic Equipment and Systems
Report ID	16036

Manufacturer **ENRAF TANKSYSTEM SA,** Rue de l'Industrie 2, 1630 BULLE, Switzerland

Philippe Despagne
General Manager

	Created / modified	Approved	Released	Remarks
1	2011/05/25	2011/05/25	2011/05/25	Creation
2				

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50474/TOMSYS/1207
July 2012
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